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A WORKING PROGRAM AGAINST INFLUENZA.

PREPARED BY AN EDITORIAL COMMITTEE OF THE
AMERICAN PUBLIC HEALTH ASSOCIATION

*And Based upon Papers, Committee Reports and Discussions Presented at the Meeting of the Association Held in Chicago, Illinois, December 9 to 12, 1918.**

FOREWORD.

SOMETHING is known concerning the nature of influenza. Much remains to be determined. Administrative health agencies, however, must act in the light of present knowledge. They cannot wait until the last word has been said in respect to the identity and nature of the microörganism or virus that causes the disease, or in respect to the channels through which it may be spread, or for the discovery of specific vaccines or sera for prevention or cure.

To afford such aid as may be possible to administrative health officials and to others concerned in the protection of the public health, a committee of the American Public Health Association was charged with the duty of preparing a provisional working formula, based upon the facts and opinions elicited at the meeting of the Association in Chicago, December 9 to 12, 1918.

This pamphlet is the result of deliberations of that committee. It is issued by the Association in the discharge of the duty to the public that the Association has assumed in the hope that it may prove helpful.

INTRODUCTORY STATEMENT.

The present epidemic is the result of a disease of extreme communicability. So far as information available to the committee shows, the disease is limited to human beings.

The microörganism or virus primarily responsible for this disease has not yet been identified. There is, however, no reason whatsoever for doubting that such an agency is responsible for it. Mental conditions may cause one to believe he has influenza when he has not, and may make the patient who has the disease suffer more severely than he otherwise would. No mental state alone, however, will cause the disease in one who is not infected by the organism or virus that underlies the malady.

While the prevailing disease is generally known as influenza, and while it will be so referred to in this statement, it has not yet been satisfactorily established that it is the identical disease heretofore known by that name, nor has it been definitely established that all preceding outbreaks of disease styled at the time "influenza" have been outbreaks of one and the same malady.

*The cost of printing and distributing this Bulletin, which was done in Chicago at the time of the Annual Meeting, was borne by funds contributed through the generosity of certain citizens of Chicago, Ill. Copies of it may be obtained by writing to the A. P. H. A. at 126 Massachusetts Ave., Boston, Mass.

There is no known laboratory method by which an attack of influenza can be differentiated from an ordinary cold or bronchitis or other inflammation of the mucous membranes of the nose, pharynx, or throat.

There is no known laboratory method by which it can be determined when a person who has suffered from influenza ceases to be capable of transmitting the disease to others.

Laboratories are necessary agencies for the supervision and ultimate control of the disease. The research laboratory is necessary for the discovery of the causative microörganism or virus, and for the discovery of some practicable method for the propagation of a specific vaccine and a curative serum. Clinical laboratories are necessary for the supervision and control of such vaccines and sera as may be used from time to time for the prevention of the disease and for therapeutic purposes, and for the information such laboratories can give to health officers and physicians as to such variations in the types of infective microörganisms, as occur during the progress of an epidemic.

Deaths resulting from influenza are commonly due to pneumonias resulting from an invasion of the lungs by one or more forms of streptococci, or by one or more forms of pneumococci, or by the so-called influenza bacillus, or bacillus of Pfeiffer. This invasion is apparently secondary to the initial attack.

Evidence seems conclusive that the infective microörganism or virus of influenza is given off from the nose and mouth of infected persons. It seems equally conclusive that it is taken in through the mouth or nose of the person who contracts the disease, and in no other way, except as a bare possibility through the eyes, by way of the conjunctivæ or tear ducts.

Prevention.

If it be admitted that influenza is spread solely through discharges from the noses and throats of infected persons finding their way into the noses and throats of other persons susceptible to the disease, then no matter what the causative organism or virus may ultimately be determined to be, preventive action logically follows the principles named below and, therefore, it is not necessary to wait for the discovery of the specific microörganism or virus before taking such action.

I. Break the channels of communication by which the infective agent passes from one person to another.

II. Render persons exposed to infection immune, or at least more resistant, by the use of vaccines.

III. Increase the natural resistance of persons exposed to the disease, by augmented healthfulness.

I. Breaking the channels of communication.

(a) By preventing droplet infection. The evidence offered indicates that this is of prime importance.

(b) By sputum control. The evidence offered indicates that the danger here is due chiefly to contamination of the hands and common eating and drinking utensils.

(c) By supervision of food and drink. Evidence offered does not indicate much danger of infection through these channels.

Details and practical methods possible for the limitation of infection through droplets, sputum, and food and drink are discussed later under special preventive methods.

II. Immunization and vaccines.

(See the report of the laboratory committee appended.)

In the present epidemic vaccines have been used to accomplish:

1. The prevention or mitigation of influenza *per se*.

2. The prevention or mitigation of complications recognized as due to the influenza bacillus or to various strains of streptococci and pneumococci.

In relation to the use of vaccines for the prevention of influenza, the evidence which has come to the attention of the committee as to the success or lack of success of the practice is contradictory and irreconcilable. In view of the fact that the causative organism is unknown, there is no scientific basis for the use of any particular vaccine against the primary disease. If used, any vaccine must be employed on the chance that it bears a relation to the unknown organism causing the disease.

The use of vaccines for the complicating infections rests on more logical grounds, and yet the committee has not sufficient evidence to indicate that they can be used with any confident assurance of success. In the use of these vaccines the patient should realize that the practice is still in a developmental stage.

The committee believes that when vaccines are used experimentally for the purpose of determining their preventive or curative value, the following conditions should be complied with:

1. The groups of vaccinated and unvaccinated persons should be the same in number.

2. The relative susceptibilities of the two groups should be equal, as measured by age and sex distribution, previous exposures to infection without development of influenza and a previous history as to recent attacks of the disease.

3. The degree of exposure in each group should be practically the same in duration and intensity.

4. The groups should be exposed concurrently during the same stage of the epidemic curve.

III. Increased natural resistance of persons exposed to infection.

Physical and nervous exhaustion should be avoided by paying due regard to rest, exercise, physical and mental labor and hours of sleep. The evidence is conclusive, however, that youth and bodily vigor do not guarantee immunity to the disease.

The nature of the preventive measures practicable and necessary in any given community depends in a large part upon the nature of the community itself, as to population characteristics, industries, and so on, and upon the stage and type of the epidemic curve. For example, the measures to be adopted in a purely rural community would not be practicable or desirable in a large metropolitan area, nor would the measures desirable and feasible at the beginning or end of an epidemic be found those best adapted for the intervening period. The committee has found it impossible, therefore, to lay down any rules for the guidance of all health officials alike in preventive measures. The most it has been able to do has been to state certain general principles that in its judgment should underlie administrative measures for the prevention of influenza. The application of these principles to the needs of any particular community must be left for determination by the officers of that community who are responsible for the protection of its public health.

The preventive measures recommended by the committee are as follows:

A. Efficient organization to meet the emergency, providing for a centralized coördination and control of all resources.

B. Machinery for ascertaining all facts regarding the epidemic:

1. Compulsory reporting.
2. A lay or professional canvass for cases, etc.

C. Widespread publicity and education with respect to respiratory hygiene, covering such facts as the dangers from coughing, sneezing, spitting, and the careless disposal of nasal discharges; the advisability of keeping the fingers and foreign bodies out of the mouth and nose; the necessity of handwashing before eating; the dangers from exchanging handkerchiefs; and the advantages of fresh air and general hygiene. Warnings should be given regarding the danger of the common cold, and possibly colds should be made reportable so as to permit the sending of follow-up literature to persons suffering from them. The public should be made acquainted with the danger of possible carriers among both the sick and the well and the resultant necessity for the exercise of unusual care on the part of everybody with respect to the dangers of mouth and nasal discharges.

D. Administrative procedures:

1. There should be laws against the use of common cups, and improperly washed glasses at soda fountains and other public drinking places, which laws should be enforced.

2. There should be proper ventilation laws, which laws should be enforced.

Since the disease is probably largely a group or crowd problem, the three following sub-heads are especially important.

3. *Closing.*—Since the spread of influenza is recognized as due to the transmission of mouth and nasal discharges from persons infected with influenza, some of whom may be aware of their condition but others unaware of it, to the mouths and noses of other persons, gatherings of all kinds must be looked upon as potential agencies for the transmission of the disease. The limitation of gatherings with respect to size and frequency, and the regulation of the conditions under which they may be held must be regarded, therefore, as an essential administrative procedure.

Non-essential gatherings should be prohibited. Necessary gatherings should be held under such conditions as will insure the greatest possible amount of floor space to each individual present, and a maximum of fresh air, and precautions should be taken to prevent unguarded sneezing, coughing, cheering, etc.

Where the necessary activities of the population, such as the performance of daily work and earning of a living, compel considerable crowding and contact, but little is gained by closing certain types of meeting places. If, on the other hand, the community can function without much of contact between individual members thereof, relatively much is gained by closing or preventing assemblages.

Schools: As to the closing of schools there are many questions to be considered.

(a) Theoretically, schools increase the number and degree of contacts between children. If the schools are closed, many of the contacts which the children will make are likely to be out of doors. Whether or not closing will decrease or increase contacts must be determined locally. Obviously, rural and urban conditions differ radically in this regard.

(b) Are the children in coming to and going from school exposed to inclement weather or long rides in overcrowded cars?

(c) Is there an adequate nursing and inspection system in the schools?

(d) Is it likely that teachers, physicians and nurses can really identify and

segregate the infected school child before it has an opportunity to make a number of contacts in halls, yards, rooms, etc.? We suggest that children suspected of having influenza and held in school buildings for inspection should be provided with and required to wear face masks.

(e) Will the closing of schools release personnel or facilities to aid in fighting the epidemic?

(f) If schools are kept open, will the absence of many teachers lower the educational standards?

(g) If a number of pupils stay at home because of illness or fear, will they not constitute a heavy drag upon their classes when they return?

(h) If schools are closed, is there likely to be an outbreak in any case when they are reopened?

Churches: If churches are to remain open, services should be reduced to the lowest number consistent with the adequate discharge of necessary religious offices, and such services as are held should be conducted in such a way as to reduce to a minimum, intimacy and frequency of personal contact.

Theatres: As regards theatres, movies, and meetings for amusement in general, it seems unwise to rely solely or in great part upon the ejection of careless coughers. In the first place it is difficult to determine who is a careless cougher, and after each cough, danger has already resulted. It seems, too, that the closing of theatres may have as much educational value as their use for direct educational purposes, etc. Discrimination as to closing among theatres, movies etc., on the basis of efficiency of ventilation and general sanitation, may be feasible.

Saloons, etc.: The closing of saloons and other drinking places should be decided upon the basis of the probability of spread of the disease through drinking utensils and the conditions of crowding.

Dance halls, etc.: The closing of dance halls, bowling rooms, billiard parlors and slot-machine parlors, etc., should be made effective in all cases where their operation causes considerable personal contact and crowding.

Street cars, etc.: Ventilation and cleanliness should be insisted upon in all transportation facilities. Overcrowding should be discouraged. A staggering of opening and closing hours in stores and factories to prevent overcrowding of transportation facilities may be cautiously experimented with. In small communities where it is feasible for persons to walk to their work it is better to discontinue the service of local transportation facilities.

Funerals: Public funerals and accessory funeral functions should be prohibited, being unnecessary assemblies in limited quarters, increasing contacts and possible sources of infection.

4. *Masks.*—The wearing of proper masks in a proper manner should be made compulsory in hospitals and for all who are directly exposed to infection. It should be made compulsory for barbers, dentists, etc. The evidence before the committee as to beneficial results consequent upon the enforced wearing of masks by the entire population at all times was contradictory, and it has not encouraged the committee to suggest the general adoption of the practice. Persons who desire to wear masks, however, in their own interests, should be instructed as to how to make and wear proper masks, and encouraged to do so.

5. *Isolation.*—The isolation of patients suffering from influenza should be practiced. In cases of unreasonable carelessness, it should be legally enforced most rigidly.

6. *Placarding.*—In cases of unreasonable carelessness and disregard of the public interests placarding should be enforced.

7. *Hospitalization.*—The theory of complete hospitalization is that, if all the sick were hospitalized the disease would be controlled. In certain somewhat small communities where hospitalization of all cases was promptly inaugurated the disease did come quickly under control. It must be recognized, however, that unless every infective person can be detected and identified as such and removed to the hospital before he has infected others, hospitalization cannot be depended upon to eliminate the disease.

In general, home treatment is to be advocated where medical, nursing and other necessary facilities are adequate, and where home treatment is not directly contra-indicated by the danger of infecting others. The hospitalization in any case, mild or severe, should be undertaken only when facilities for home treatment are inadequate with respect to medical and nursing care or otherwise. The objection to routine hospitalization of mild cases lies in the fact that patients not already suffering from secondary infections may acquire them by exposure to hospital cases already so infected. The objection to the routine hospitalization of severe cases lies in the danger to the patient necessarily incident in the transfer from home to the hospital.

8. *Coughing and Sneezing.*—Laws regulating coughing and sneezing seem to be desirable for educational and practical results.

9. *Terminal Disinfection.*—Terminal disinfection for influenza has no advantage over cleaning, sunning and airing.

10. *Alcohol.*—The use of alcohol serves no preventive purpose.

11. *Sprays and Gargles.*—Sprays and gargles do not protect the nose and throat from infection, for the following reasons:

(a) So far as the knowledge of the committee extends, no germicide strong enough to destroy infective organisms can be applied to the nose and throat without at the same time injuring the mucous membranes.

(b) Irrigation of the nose and throat to accomplish the complete mechanical removal of the infective organism is impracticable.

(c) Their use tends to remove the protective mucus, to spread the infection and to increase the liability of actual entrance of the infective organisms.

(d) Their domestic use is liable to lead in families to a common employment of the same utensils.

(e) The futility of sprays and gargles has been demonstrated with respect to certain known organisms such as the diphtheria bacillus and the meningococcus.

Miscellaneous Considerations.

1. Colleges, asylums and similar establishments may with advantage enforce rigid institutional quarantine against the outside world, if they begin in the early stage of an epidemic, provided they are so located and conducted as to render the procedure reasonably likely to be effective, even temporarily; for even temporary success will postpone the appearance of the disease, if it appears at all, to a time when the patients will be more likely to be able to have adequate medical and nursing care.

2. The recommended measures for control, even if they do not accomplish the desired end, should at least be instrumental in distributing the epidemic over a

longer period of time, which in itself is highly desirable.

3. The statistics of the disease and the keeping of proper records are extremely important. The lack of knowledge regarding innumerable factors in reference to the disease makes all the more desirable complete case records, etc.

4. The committee wishes to emphasize the need for the complete statistical study of the collected data on the mortality, morbidity, case fatality, duration, economic aspects, and therapeutics of the disease. Through the collection of the facts in a uniform manner, and through the analysis of such tabulated data, especially mathematical graduation, and testing and study of the figures, important contributions to the natural history and typical characters of the disease may be expected. General principles as to the etiology, fatality and practical management of influenza may follow from the extensive survey of the epidemic in the statistical laboratory as well as from the intensive bedside observation of single cases of the disease.

5. The measures recommended are calculated to be effective in the promotion of respiratory hygiene in general and particularly in the control of pneumonia and other respiratory infections.

Administrative Measures for Relief.

The committee on administrative measures for relief would submit the following considerations as constituting a summary of the important measures for meeting epidemic conditions:

I. General Rules.

1. Compulsory reporting.

2. Isolation, by coöperation and education, to a point where it does not diminish the willingness of the physician to report.

3. Placarding would seem to be subject to the same limitations as is isolation.

4. The closing of schools, prohibition of funerals, etc., being preventive measures, are not touched upon in this report, except to mention that the closing of many agencies will release medical, nursing, and volunteer services for special influenza work.

5. It may be necessary to grant authority and power to the health authorities to administer relief.

II. Preliminary Measures.

1. The listing and distribution of resources, including physicians, nurses, social workers, nurses' aids, clerks, domestics, laundresses, automobiles, chauffeurs, mask makers and volunteers of all kinds.

All available publicity channels should be used to promote volunteer service.

An appeal should be made for voluntary donors of human blood serum from convalescent influenza patients, to be held in readiness for use in treatment.

2. The centralization of resources, under one control, with central and branch headquarters, the city being districted for medical, nursing and other work.

The central headquarters should be ordinarily under the supervision of a board representative of the most important agencies concerned, the board's work to be administered through a manager (presumably the health officer) selected for his fitness.

3. The service should be maintained on a 24-hour basis, and a system of outgoing and incoming telephone service is essential.

4. The local authorities should get and keep in touch with state and national agencies.

III. Current and Continuous Analysis of Case Situation

1. In the smaller communities a canvass should be made of all physicians, soliciting information as follows:

(a) Number of cases under care.

(b) Number of cases needing hospital treatment.

(c) Number of cases needing home nursing care.

(d) Number of cases requesting medical service but not reached.

This information will indicate the situation as regarding the need for emergency nursing and medical service, and should be acquired as fully as possible in larger communities, through various agencies such as a current lay or police canvass of homes, etc. The continuous classification of cases according to these groupings is of practical value.

IV. Analysis, Augmentation and Organization of Principal Facilities.

(A) *Field Nursing.*

1. Ordinarily nursing facilities utilized in general public health work should be diverted to meet the epidemic situation, and should be used on a district basis, with all other available facilities, under one supervision.

2. Nursing assistants, volunteers, etc., should be used wherever possible in homes and institutions, under expert supervision, after classification and assignment on a basis of minimum standards as to fitness, and such intensive training in the care of influenza and pneumonia patients as may be feasible.

3. From the standpoint of the patient, home treatment is to be advocated, if medical, nursing, disease preventive and other facilities are adequate.

4. Restriction so far as possible through the pressure of public opinion should be brought against the unnecessary use of private nurses.

5. Automobile transportation should be provided, and the nursing service used to encourage isolation and education.

6. Special record forms are essential for this and the medical work, and a special sub-committee is prepared to meet this problem.

7. Provision as to housing and care should be made for out of town nurses.

8. We recommend further training with reference to influenza for all graduates of Red Cross home nursing courses and more extensive use of their services. This would necessitate frequent and careful registration (names, addresses and telephone numbers) and further information regarding personal health, age and ability and willingness to serve.

(B) *Emergency Medical Service.*

1. The medical service should be handled through the central office, the physicians being responsible to the central office, though perhaps assigned to district offices.

2. In this emergency service there should be utilized all available physicians such as school and factory physicians, volunteers, practitioners on a paid basis, fourth year medical students, etc. This service should cover all calls reported as unreached by private physicians or received through other channels, and should be coördinated with the special nursing service, being provided with automobile transportation, machines being hired if necessary.

3. The emergency medical service should be used to select cases needing hospital care.

4. It may be feasible to institute a central clearing house in certain districts for private physicians' calls.

5. An arrangement should be made through the medical licensing board for the granting of temporary permits to practice to reputable physicians from out of the state, at the request of the Central Influenza Committee.

6. In some localities it may be feasible to district the local practitioner and to have him meet special calls on a part time basis for adequate compensation.

7. Certain of the relatively non-essential specialties should be discouraged, and the physicians in those specialties urged to volunteer for emergency district work. This type of service may be operated on a pay or free basis.

8. Presumably some effort should be made, through an authoritative medical commission, to suggest standard methods of treatment, and wise limitations as to therapeutic procedure.

(C) *Hospital Facilities.*

1. It is essential that the facilities, if possible, be kept ahead of the demand. A daily canvass should be made and data collected regarding available beds, medical and nursing needs, domestics, food, cots, supplies, etc. A regular visit by an inspector will probably prove more effective than an attempt at telephone communication.

2. Under most conditions a central clearing house, covering most if not all of the hospitals, is advisable for the admission of cases. Through this channel the severer cases may receive first consideration. Owing to constant changes in the hospital bed situation, the daily canvass of facilities may not be wholly depended upon; on the contrary, it may usually be necessary to telephone the hospital in order to make sure regarding the admission of a particular case. In any event the hospitals, if facilities are inadequate, should be impressed with the necessity for admitting only the most severe or needy cases, pay or free. Special hospital arrangements should be provided for pregnant women.

3. It is advisable to add wards or tents or new equipment to existing institutions rather than to establish entirely new emergency hospitals. If practicable, certain hospitals may be urged to handle influenza cases exclusively.

4. Non-emergency surgical and chronic medical cases amenable to home treatment should be dehospitalized.

5. A convalescent home, if adjacent to the hospital, may serve for the care of mild and convalescent cases, thereby increasing the space in the hospital for acute cases, obviously involving an increase in the nursing facilities.

6. A canvass of ambulance facilities should be made, ambulances being requisitioned with payment, or hired by contract, if necessary. Automobiles and motor trucks should be potentially mobilized for this purpose. Frequently military equipment may be used if accessible.

V. Social and Relief Measures.

1. The central office should keep the family advised regarding the patient, thereby saving telephone calls, trolley fares and worry on the part of the family, and thereby increasing the willingness for hospitalization.

2. Volunteer workers such as Red Cross volunteers, teachers, relatives, etc., should be placed in care of families where the responsible members are dead or hospitalized, this service being under expert social supervision, and the families in touch with the supply system. Supervision of placed-out children is also necessary.

3. Homes should be investigated before patients are discharged into them, when destitution or other untoward circumstances are apparent.

4. Precaution should be taken that institutions and families too busy with the influenza situation to look after their own needs, are covered by the general relief measures.

5. Ordinary charitable relief should be handled through the routine agencies, the service coördinated with the other epidemiological measures. Churches, lodges, etc., should be urged to handle their own cases, in order to relieve the pressure on the central agency. Aid should be immediate, without protracted investigation.

6. Recreation facilities (motoring, etc.) should be provided for the physicians and nurses while off duty.

VI. Food.

1. Available central cooking facilities should be used so far as is necessary, such as the dietetic equipment in high schools, normal schools, colleges, etc., with a delivery system to families and institutions in need.

2. Individual families should be encouraged to cook additional amounts, the same to be delivered to central diet kitchens for distribution, a standard list of prepared foods needed being devised and advertised, with recognition of racial customs and preferences.

3. It may be necessary to establish canteens in sections of the city.

VII. Laundry.

1. A special collection and distribution system may be essential both for homes and institutions.

2. It may be necessary to take over a public laundry with compensation, or a private non-medical institution laundry.

VIII. Provision for Fatalities.

1. Death reporting should be prompt (24 hours) and a record kept so as to insure prompt disposal of bodies.

2. A daily canvass of available coffins should be made, labor assured for construction, and possibly no coffins sold without the permit of the Influenza Administration Office.

3. If morgue facilities are inadequate a central place should be provided, with embalming facilities, for the temporary disposal of bodies.

4. A canvass of hearses should be made and regulations issued prohibiting unnecessarily long hauls, insisting on maximum capacity loads, etc. A central control will prevent unnecessary duplication as to routes, etc.

5. A reserve supply of trucks and automobiles should be at hand for use in various ways in connection with the handling of fatal cases.

6. The number of graves required should be estimated and labor released from public works or secured through other channels (possibly military) for digging. Possibly temporary trench interment may be necessary.

IX. Education, Instruction and Publicity.

Literature and special instructions will be necessary on many phases, including the following:

1. Instructions to physicians as to reporting, facilities available, district arrangements, etc.

2. Advice to physicians regarding treatment standards and suggestions.

3. Instructions for families, to be distributed by nurses, physicians, social workers, druggists, etc., covering the problems of care during the physician's absence.

4. Instructions to the public as to where aid may be secured, to be printed in various languages, and distributed by druggists, displayed in street cars, used in the press, etc.

5. Instructions for families on "What to do till the doctor comes."

6. Instructions to physicians, factory managers, school superintendents, etc., urging the necessity for immediate home and bed treatment at the first sign of respiratory disease.

7. Popular literature on the essentials of adequate care, the danger of returning to work too soon, etc. Popular press space is worth paying for, if it cannot be secured otherwise.

8. Popular publicity as to legitimate medical, nursing, undertaker, drug, and other charges, to prevent profiteering.

X. Miscellaneous.

1. The coöperation of pharmaceutical agencies should be secured to insure an adequate supply of drugs and druggists.

2. Influenza victims and their families should have "first call" on fuel deliveries.

3. While follow-up procedures are not legitimately a factor in the epidemic situation, their consideration is essential to an adequate meeting of the entire problem. This means adequate provision for medical examination and nursing care, relief measures, industrial employment problems, the follow up of special sequelæ such as cardiac affections, tuberculosis, etc.

4. It is finally suggested that Health Department draw up a program based on the above outline, holding it in reserve for future use, if not immediately needed, and modifying the proposal to fit the size and other characteristics of the particular community.

The Bacteriology of the 1918 Epidemic of So-Called Influenza.

The epidemic disease known as influenza is believed to be due to an undetermined organism which causes an infection that lowers the resistance of the body as a whole, and of the respiratory organs in particular. This allows the invasion of other pathogenic microörganisms. The most important complicating infections are due to the influenza bacilli, different strains of pneumococci and different varieties of streptococci. Some careful observers regard certain of these organisms as the primary cause.

In each case, one or several of these microörganisms may be present. In different portions of the country the dominating variety of organism has been found to differ.

Vaccines.

Assuming that the cause of the epidemic is an unknown virus, it does not seem possible at present to prevent the primary disease by vaccination with known organisms. Against the secondary infections, there would seem to be a theoretical basis for the use of vaccines, and especially for the use of vaccines prepared from organisms responsible for complications which may differ in various localities at various times. This variable bacterial flora may militate against the practical application of vaccination on a large scale, because it would seem to require frequently repeated vaccinations with the flora that may be met with. It is impossible at present to evaluate the reports from the use of these vaccines adjusted to meet local conditions. More data obtained under carefully controlled conditions are needed.

Stock vaccines made from the influenza bacillus alone or from other bacteria, have been used to considerable extent. The injections of stock vaccines have seemed to mitigate to some degree some outbreaks

of influenza and also the severity of the complicating infections; but in those instances in which the results of the use of vaccine have been controlled, no appreciable results have been obtained. The fact that the vaccine is usually employed after the epidemic has broken out and is perhaps on a decline, and the fact that an unknown number of people have been exposed, make it very difficult to draw conclusions as to its efficacy.

Recommendations.

Your committee recommends that until such time as the efficacy, or the lack of efficacy, of prophylactic vaccination against influenza is established, vaccine if used, should be employed in a controlled manner, under conditions that will allow a fair comparison of the number of cases and of deaths among the vaccinated and non-vaccinated groups. Particular attention should be directed to securing data as to the period in the epidemic at which vaccinated and non-vaccinated persons developed the disease.

Your committee is of the opinion that the indiscriminate use of stock vaccines against influenza and influenza and pneumonia cannot be recommended.

Nothing in these recommendations should be interpreted as discouraging the use of a pneumococcus stock vaccine against lobar pneumonia.

This epidemic emphasizes the importance of properly equipped laboratories.

History and Statistics of the Epidemic.

Your sub-committee wishes to say that in view of the fact that the historical and other data of the epidemic are still in process of collection, no positive statement can be made at the present time on the precise incidence of the disease in the American population. On the basis of the best data available your sub-committee estimates that there were not less than 400,000 deaths from the disease in the United States during the months of September, October and November, 1918. The major portion of this mortality occurred at ages 20–40, when human life is of the highest economic importance. We would suggest that this sub-committee be authorized to coöperate with the special committee on statistical study of the epidemic of the Section on Vital Statistics of this Association, and that the data collected through that latter special committee be reported through the sub-committee on history and statistics of the epidemic to the general reference committee on the influenza epidemic. Standard forms for purposes of statistical tabulation, analysis and graphic presentation will be submitted in a supplementary report at an early date.

Suggestions.

In view of the probability of recurrences of the disease from time to time during the coming year, health departments are advised to be ready in advance with plans for prevention, which plans shall embody the framework of necessary measures and as much detail as is possible. Laws plainly necessary should be enacted and rules passed now. Emergency funds should be held in reserve or placed in special appropriations, which appropriations can be quickly made available for influenza prevention work.

The probability that as an after effect of the influenza epidemic there will be an unusually high pneumonia rate for several years should be taken into consideration.

Of measures for the control of the disease, bacteriologic studies as to the nature of the organisms causing the primary infection and as to bacteria associations, new and improved procedures leading to the production and use of effective vaccines and curative sera, and the fresh air treatment of the infected, appear to offer most promise.

Appointment and Organization of the Committees.

The executive committee of the American Public Health Association appointed the following reference sub-committees on influenza:

Sub-Committee on Bacteriology of the 1918 Epidemic of Influenza.

Dr. W. H. Park of New York City, *Chairman.*
Dr. G. W. McCoy, Washington, D. C.
Dr. Henry Albert, Iowa City, Iowa.
Dr. D. J. Davis, Chicago, Illinois.

Sub-Committee on History and Statistics of the Epidemic.

Dr. William H. Davis, Washington, D. C., *Chairman.*
Frederick L. Hoffman, Newark, N. J.
Dr. John T. Black, Hartford, Conn.
E. W. Kopf, New York City.

Sub-Committee on Administration of Measures for Relief.

Dr. D. B. Armstrong, Framingham, Mass., *Chairman.*
Dr. W. C. Woodward, Boston, Mass.
Miss Eunice H. Dyke, Toronto, Canada.
Miss Edna L. Foley, Chicago, Ill.

Sub-Committee on Measures for Prevention.

Dr. Rupert Blue, Washington, D. C., *Chairman.*
Dr. W. A. Evans, Chicago.
Dr. J. A. Haynes, Columbia, S. C.
Dr. M. S. Fraser, Winnipeg, Man.

The four sub-committees formed a general committee of which Dr. Rupert Blue was chairman and Dr. W. A. Evans, vice-chairman. The various sub-committees attended the discussions on influenza and read the papers and discussions. The general committee held one meeting at which the sub-committees presented their reports. The report of the sub-committee on relief was discussed by the general committee, but not voted on or adopted. It is printed substantially as presented by the sub-committee to the general committee.

The report of the sub-committee on bacteriology was presented to the general committee and by them discussed, but not voted on or adopted by the general committee. It is printed as presented by the sub-committee.

The report of the sub-committee on history and statistics was presented to the general committee and by them discussed but was not voted on or adopted by the general committee. It is printed as it was presented by the sub-committee.

The sub-committee on measures for prevention suggested a first draft or rough sketch.

On the last day of the meeting, the executive committee of the Association appointed an editing committee composed of Dr. W. A. Evans, chairman; Dr. D. B. Armstrong, Dr. W. H. Park and Dr. William H. Davis, each representing a sub-committee, and Dr. W. C. Woodward and Mr. E. W. Kopf, as editorial advisors, to edit the report of the reference committee and to carry it through the press and to distribute it to those in attendance on the meeting.

The committee read the reports of the committees on statistics, laboratory problems, and measures for relief, but did not alter them. They wrote the report on prevention.

Very respectfully submitted,

W. A. Evans, *Chairman.*
D. B. Armstrong.
William H. Davis.
E. W. Kopf.
William C. Woodward.

Note: Dr. W. H. Park, having returned to New York, did not serve on the editorial committee.

[Chicago,] December 13, 1918.

TEAMPLAY IN PUBLIC HEALTH.

GEORGE E. VINCENT,
President of the Rockefeller Foundation.

Abstract of Address before the American Public Health Association, Chicago, December 12, 1918.

THERE are at least three stages in the development of a successful social movement: a period of agitation, a period of organization and a final incorporation in the accepted order of things. The chief voluntary public health societies have rendered good service in the pioneer stage of agitation. They have directed attention to health problems; they have informed the public; they have fostered opinion to support municipal and state officers; they have demonstrated the effectiveness of certain policies; they have helped to create the beginnings of a public health literature. Let all this be granted ungrudgingly, even with warm appreciation, but at the same time let us ask whether the pioneer period has not passed, and whether the stage of organization is not seriously overdue.

Three years have passed since Dr. Frederick R. Green, in a trenchant paper, asserted that the voluntary public health agencies of the country stood in need of closer comradeship. He showed that a bewildering number of societies were working in almost complete disregard each of the other in the field of preventive medicine, with consequent confusion, overlapping, duplication, rivalry, and waste of energy and money. Largely as a result of this vigorous and somewhat disconcerting arraignment, a committee was appointed to consider the coördination of these associations. Two meetings of the representatives of the chief agencies were held. Little or nothing, however, was accomplished.

The war which taught us to subordinate individual and group interests to the common welfare, seemed likely soon to have its influence upon the agencies of public health. Our doctors were mobilized and began under military auspices the practice of social medicine. It was hoped that federal control might be extended to public health. Certain eager enthusiasts suggested the appointment of a national health administrator who should ordain a hygienic millennium. November 11 marked the high-tide of centralized control which is steadily receding. How far back it will sweep we have yet to learn. A little permanent gain has been recorded. The President on the first of last July issued an order which placed upon the United States Public Health Service the responsibility for bringing together the twelve government bureaus, officers or war council committees which deal with different phases of public health. Since then the Service has issued a comprehensive, national health program.

Under the new conditions American voluntary public health agencies cannot wholly withstand the demand for teamplay. A mere statement of the situation puts the societies on the defensive. Twenty-eight associations exist for the sole purpose of promoting some phase of public health. Twenty-nine others, whose primary function falls in a different field, devote a part of their energies and funds to work in preventive medicine. The total, fifty-seven, is an appropriate symbol of variety. Unlike the famous fifty-seven, however, these are not products of a unified establishment and bear no standardized label. While some of these groups have slight coöperative arrangements, and although their leaders occasionally meet in conference at

conventions, it is substantially true to say that these associations go their own ways, pursue their own methods, collect their own funds, and appraise their own accomplishments.

It has been impossible to secure complete information from all of these societies. Only thirty-four out of fifty-seven societies reported. The delinquents belong, with few exceptions, among the less important agencies. For the year 1917 the total expenditures reported were $1,572,696.23. Of the above total nineteen societies in the first group spent $573,470.34, a part of which was unquestionably extraordinary expenditure for war purposes. The percentage of salary payments to total expenses varied from nearly 65 to 12½. The average for fifteen societies was 33.9. Facts about membership are also incomplete. In the group of special public health societies, the National Tuberculosis Association with 4,000 members and the National Organization for Public Health Nursing with 2,500 are the most important. The others vary from 1,000 to 200 members. The figures for the second group mean very little. For example, to include the 30,000,000 members of the American Red Cross or the 2,000,000 members of the General Federation of Women's Clubs would be distinctly misleading.

The headquarters of the different societies are concentrated in a few cities. Thirty-two have their chief offices in New York. Most of the others are in Boston, Philadelphia, Chicago, and Washington.

If the voluntary agencies are grouped on the basis of the interests which they touch, the following significant results are obtained: Thirty-five deal with some phase of child welfare. Eleven are concerned with tuberculosis. Ten have a bearing upon social diseases. Eleven are interested in industrial accidents. Nine undertake to deal with crime. Seven are wholly or in part working in the field of mental hygiene. Five have to do with problems of blindness. Three promote the cause of public health nursing. Another three study questions of eugenics. Three more promote the cause of first aid to the injured. Two deal with mouth hygiene, and two with posture. In each of the fields of cancer, epilepsy and heart disease there is only one special society.*

No one would undertake seriously to defend the present state of affairs on the score of efficiency, economy, or public welfare. So far the critics of this chaos have laid chief stress upon the waste of time, energy and money, the confusion of the public mind, the overlapping of effort, and the discrediting of public health undertakings. Serious as these things are, there are other dangers less conspicuous but even more subtly menacing. Thus underlying the whole movement is the assumption that there is a definite and verified body of scientific and administrative knowledge which is guiding the activities of all public health agencies, governmental and voluntary. It is precisely such a body of knowledge that is needed. Does not the existence of so many societies, each with its specialty, actually hinder the accumulation of the tested scientific knowledge which is essential to successful public health development? Each group tends to over-emphasize the significance of the disease with which it deals. The temptation to demonstrate striking achievements as a basis for soliciting support funds cannot be wholly resisted. This does not mean that officers of these societies are conscious of deceit or misrepresentation. The capacity of self-deception, especially in altruistic

*These statements of fact together with many points throughout this paper are derived from a special "Report on Voluntary Agencies in the Field of Public Health" made recently by Dr. Ernst C. Meyer of the Department of Surveys and Exhibits of the International Health Board.

endeavor, is well-known. The partisan in public health, as in every other human activity, needs the constant check of impartial criticism and of objective tests.

Another danger lies in prematurely forcing upon municipal and state administrations half-baked public health policies which may endanger the common welfare, waste the public funds, discredit the cause of public health in a community, and produce popular reaction. Again, under existing conditions, it is practically impossible either in a given community or in the nation, to develop a unified public health program such as that which has been recently offered by the United States Public Health Service. Unless the plan of the government to bring its various bureaus into a coördinated movement can receive the unified support of private public health agencies, the results will fall far short of even a modest ideal.

The development of an effective public health program is dependent upon three things: (1) A definite body of scientific knowledge, medical, statistical, and sociological; (2) the effective demonstration of the application of such knowledge in communities, states and the nation; (3) a systematic, unified, consistent education of the public in the scientific basis and the principles of procedures of public health.

Does not the existing chaos of voluntary effort in the United States actually hinder rather than further these three essential things? There is too little unbiased research. The private agencies are so absorbed in collecting funds, informing the public of their achievements and issuing ex-parte literature that time, energy, and money are lacking for strictly scientific investigation. Moreover, unified administrative procedures are rendered difficult if not impossible because each group seeks to magnify its own function at the expense of those of other agencies. Again, so far as popular education goes, the different societies are distributing to an uncritical public a variety of suggestions and assertions, many of them inconsistent, some of them actually contradictory. It is full time to face this indefensible situation with complete frankness. The demand for teamplay is obvious and pressing.

The need for coöperation in research cannot be denied. Research in public health, while it is dependent upon the laboratory, is chiefly a field undertaking. Results should be consistently checked by impartial observers who have no special cause to serve, no preconceived theory to support. A bureau of statistical inquiry which should make objective studies of various public health experiments and demonstrations would render the kind of service which certified public accountants render in the field of business. It has long been recognized as a sound principle that no business enterprise should audit its own finances, and certify its own condition to the public. An English writer in discussing the establishment of a Ministry of Public Health lays stress upon this very point. "Such a Ministry," he says, "should be not so much unifying as coördinating. . . . (It is) mainly in scientific and statistical work that coördination is required." Again, he declares: "Freedom from administration is essential to independence of judgment."* The latter statement especially touches a vital matter. No one who is administering a special undertaking, devoting his time and energy to making it a success and especially no one who is soliciting funds that the experiment may be continued, ought to put himself in the position of appraising the results of his efforts.

Administrative teamplay is essential. The health of a community is, after all, not a group of special interests. It is

*W. A. Brend: "Health and the State," p. 60.

essentially a single interest with different aspects. To exalt one of these, to get it out of focus, and to urge it at the expense of other essential factors, is unscientific, wasteful and misleading. Only as the essential unity of the task is recognized and as those who represent different phases work together in constant conference and in accordance with a comprehensive program, can the best results be secured. The studies which the Russell Sage Foundation has made at Newburgh, Topeka, Springfield (Illinois) and Ithaca, are illuminating and suggestive with reference to this point. The significant undertaking at Framingham is being watched with deep interest.

The importance of teamplay in public health education need not be elaborated in detail. If as a result of independent public health research and careful statistical inquiry, verified knowledge could be secured, and then presented through scientific papers and manuals, popular journals, pamphlets, posters and advertisements which should emanate from a coöperative bureau of popular education in public health, immense gains in accuracy and authority as well as important economies would accrue.† One can imagine also a public health journal of a popular character published under the auspices of such a bureau and given a wide circulation throughout the country. This center would also serve as a press bureau for the periodicals and the daily papers. In close coöperation with the Federal government and state and municipal officials, such a bureau could render enormous service in developing an instructed public opinion to support governmental policies.

Granted what it would seem hard to dispute, the real need for teamplay in research, in administration, and in education, the question arises as to what type of organization might be undertaken with reasonable hope of success. There are two methods of approach—either from the center to the periphery, or from local communities to the nation. It is conceivable that both kinds of effort might be made at the same time. It is easy to sketch on paper a form of national organization. This would naturally include, let us say, an American Public Health Association which should aim at organizing on a national scale a maximum constituency of individuals interested in the promotion of public health. Local chapters would be subordinate to state societies. These in turn would form a part of a national association. Various special groups would form sections, *e. g.*, tuberculosis, child welfare, venereal diseases, public health administration, etc., which would be coextensive with the entire organization. The executive heads of these sections would form an administrative committee which under the guidance of a national council and with the leadership of a full time executive would consider comprehensive programs, submit national budgets and make an appeal for funds. In any such organization federal, state and local officials would naturally be represented. Under the auspices of such a society a bureau of research with its independent statistical service and a bureau of popular education would be conducted.

Difficulties in the way of creating such an organization are obvious. There are groups which would hesitate to merge their individuality. Collective egotism in these days largely takes the place of individual selfishness. Another obstacle would be the fears of individual officers that their services might not be required in the new organization. A third diffi-

† Since this was written the De Lamar bequest has been announced. This will apparently impose upon Harvard, Columbia, and Johns Hopkins an obligation to institute University-Extension activities in hygiene and public health. Are there to be three independent centers of propaganda or are they to develop teamplay and become a national agency?

culty might be found in the prejudice against large dominant organizations to which monopolistic tendencies are attributed. In the fourth place many who are interested in public health would fear the development of bureaucracy and the hampering of that uncontrolled initiative which now runs riot in the public health movement.

All of these objections deserve consideration. The success of any coördinating national agency would depend upon recognizing frankly the special interests in public health which as sections working in constant conference and harmony would perpetuate the individuality of the strongest existing societies. Certainly the men and women who have shown intelligence, ability and devotion in various public health activities should so far from being discarded in a new organization, be given places of greater security and dignity with freedom from the harassing cares of money raising and larger opportunity for actual service. By providing for the election of the various representatives through the chapters and state organizations, a democratic form of control could be secured which would be a protection against the domination of a self-perpetuating inner group. At the same time a council created in part on an *ex-officio* basis and having only advisory functions could exercise through sheer force of personal and institutional prestige an important guiding and steadying influence.

There seems little doubt that if some such coördination of effort could be secured and a comprehensive program worked out, the funds required for the central administration and for the creation of a national reserve fund out of which appropriations could be made toward local and state campaigns, would be forthcoming. It is reasonable to believe that a large membership could gradually be recruited from which fees divided between local budgets and the national treasury could be secured. It is also probable that individuals and institutions who are deeply interested in the promotion of public health, would, especially in the early stages of such a movement, contribute substantial sums to insure a fair trial for the experiment.

In connection with this question of national organization, the peace plans of the American Red Cross ought to be considered. This great organization, which has rendered conspicuous service during the war, has announced its intention to develop a peace program which shall have direct bearing upon public health, the training of nurses, and the "Safety First" movement. The American Red Cross will continue to appeal at Christmas time to the American public for a Christmas gift. It will attempt to maintain a large membership throughout the nation. It is conceivable that this Red Cross might be willing to make an annual appropriation toward the budget of a national public health association. A precedent is this year established in the taking over by the Red Cross of the sale of Christmas seals, and the appropriation *in lieu* of this surrendered perquisite, of the sum of two and a half million dollars to the National Tuberculosis Association.

Or the Red Cross might itself directly undertake to affiliate and coördinate the various public health agencies and to solicit for this purpose funds from Red Cross members and the American public. After meeting all its war obligations, it is understood that the American Red Cross will have substantial resources with which to inaugurate its peace policies. It is an appropriate time, therefore, from every point of view to consider possible relations which the American Red Cross may sustain to a coördinated public health movement throughout the United States.

The other type of teamplay might be undertaken through a considerable number of local demonstrations. Jackson (Michigan), Cincinnati, and Framingham have developed significant forms of local public health organization. In many other places throughout the country visiting nurses' associations, hospital social service departments and other agencies have been working out plans of closer cooperation. During the influenza epidemic many temporary organizations were effected which suggest possibilities for permanent policy. If in a given community the private agencies would work out a comprehensive program of public health, to be carried out over a given period with expert administration, and independent statistical audit, it is altogether likely that a considerable part of the cost might be contributed by institutions which are anxious to foster demonstrations in the field of public health. Such appropriations might extend over a five-year period and diminish by 20 per cent annually so that at the end, the entire expense if the experiment proved successful, would be assumed by the community. If local experiments of this kind were undertaken in a considerable number of places so that substantially all the types of community—urban, village and rural—might be used for demonstration purposes, it is reasonable to assume that the policy of unified public health effort would be furthered.

As has been suggested already, there is no reason why both of these types of teamplay—national and local—might not be undertaken at the same time. There would be a great advantage in creating the central bureau of research and statistical inquiry under the auspices of which the local experiments could be carried out. It is possible that the United States Public Health Service might from the outset be able to coöperate not only in the local undertakings, but in the national program.

It is certain that so long as the voluntary agencies of the country persist in their present policy of isolation and rivalry, seeing their specialties out of focus, unconsciously misleading the public, hampering the development of unbiased research, preventing the consistent and careful education of the public mind, they will be in no position to bring to bear upon the Federal government pressure for the creation of a federal department of health with a secretary of health in the cabinet of the President.

On the other hand, the development of thoroughgoing teamplay among voluntary agencies in close coöperation with the federal and state authorities, ought with the education of the public, to lead inevitably to the establishment in Washington of a national department of public health which without imposing its authority unduly upon states and communities, would through its research activities and its comprehensive programs guide all the forces of public health throughout the nation.

How is the present equilibrium of individualism and tradition to be upset? Are we to go on into times of peace forgetting all the lessons of teamplay which have recently been forced upon us? It is certainly worth while to make an effort to bring about a change. The American Public Health Association certainly has a name which a national society might well bear. It is the pioneer in the movement. It is interested in the whole program of public health and not committed to any one aspect of it. The American Public Health Association includes a large part of the leadership upon which the success of any plan of teamplay would depend. Could not the Association suggest or approve a conference of officers of the leading public health organizations together

with men and women of recognized status whose chief interest is not in the welfare of any one society but in the promotion of the health of the American people through the most effective machinery that can be set up? The aim of such a conference would be to formulate one or more plans for submission to the various associations concerned. Or better still, perhaps would not this society favor the appointment of a commission of disinterested public health leaders to study the problem, confer with the several groups involved, and formulate a solution?

The problem seems to be very much that of church unity, only it is to be hoped not quite so apparently insoluble. Just as no one church can expect all the others to accept its creed and authority as a basis of unity, so no one of the public health agencies can invite the others to merge themselves in it. The essential thing in teamplay is that each participant shall not lose his identity but shall subordinate his individual purposes to the common interest, and shall do his part loyally in accordance with a plan which is accepted by all and which gives unity and efficiency to the combined endeavor. When we think of the inspiring rhetoric in which we have indulged during the last few months, the exaltation of the national welfare, the sacrifice of the individual to the group, etc., can we with complacent equanimity contemplate the continuance of a state of affairs which however defensible in pioneer days has become an obstacle to progress in one of the most fundamental of our national needs?

◈

LIVE IN THE OPEN.



This little pictorial hint, fresh from the campaign in France against tuberculosis and infant mortality, shows how admirably and artistically the work is being carried on. The psychology of apt illustration is a strong weapon in the hands of the united forces that are carrying on this work, the International Health Board, the Red Cross and the French Government.

A strong force of Americans has been at the head of the movement, which has been carried on with great energy, using the customary American methods of publicity and education adapted to the tastes and customs of the people. This is one of the picture postal cards that have been widely distributed. Its legend, "Live in the open as much as possible," is made more telling and the surprise of the dog in discovering the snail attracts attention even of the youngest, and children have been especially considered in this great educational campaign.

THE WORK OF THE ILLINOIS INFLUENZA COMMISSION.

Read before the American Public Health Association, Chicago, December 9–12, 1918.

INFLUENZA, in epidemic form, invaded Illinois during the early part of September, appearing almost simultaneously at two places in the state, one in the extreme northern portion and the other in the extreme southern portion, with an intervening distance of about four hundred miles. One of these points of invasion was the Great Lakes Naval Training Station, housing upward of 50,000 young men. The other was the village of Elko, Alexander County, a community with relatively small but congested population.

Elko was off the line of great avenues of travel, surrounded by a territory not thickly settled and made up of a population which had only slight interchange with other communities. In this community, the epidemic quickly ran its course and was almost forgotten in the state-wide epidemic which spread over Illinois during October and November and which remains in at least twenty counties at the present time, reappearing in some sections where it had appeared that the danger was entirely passed. There is reason to assume, from the history of the epidemic, that the prevalence of the disease in southern Illinois, a number of weeks later, was due to the great wave of infection that spread from the northernmost limits of the state rather than from the early point of invasion in southern Illinois.

The Great Lakes Naval Training Station, on the other hand, is situated in a thickly settled portion of Illinois, close to her largest city, on main lines of travel and with a population which, under normal conditions, had continuous intercourse with a widespread and thickly populated area of the state.

By September 22, the epidemic had made its first impression upon the mortality of the City of Chicago and by October 1, the disease had appeared at Camp Grant where it spread with great rapidity and with very high mortality. The fact that the disease thus appeared so early during the epidemic in two large military camps is interesting in view of the fact that in sixty-four Illinois counties offering explanations as to their source of infection, thirty-one declare that their first cases came from military camps and cantonments.

On September 25, the State Department of Public Health promulgated rules and regulations for the control of influenza making all cases reportable by physicians, nurses, school authorities, hospital and institutional officials, householders and other officials and requiring the isolation of all known or suspected cases and specifying precautionary measures.

On September 28, there was created, at the instance of the Council of National Defense, the Illinois Influenza Commission, made up of representatives of the Army, the Navy, the United States Public Health Service, the American Red Cross, the State Department of Public Health, the Health Department of the City of Chicago with others interested in public health activities. This commission held almost daily conferences until after the disease had reached its crest in the northern part of the state. To keep in close touch with these conferences and to meet the needs as they developed in northern Illinois, the State Department of Public Health established offices in Chicago which were maintained for a period of about six weeks.

From the Great Lakes, the epidemic spread as a great fan-shaped wave south-

ward and westward, the daily and weekly spot maps making an interesting picture. With remarkable uniformity this wave proceeded out through the state, but with narrow lines extending in advance along the greater trunks of travel, often describing actual curves in accordance with the course of the principal railways.

Almost at once it was found that there were many communities seriously stricken, where the medical forces had been greatly depleted through military enlistment and where nurses were almost unobtainable.

About October 9, the State Department of Public Health received a telegraphic communication from the Surgeon-General of the United States Public Health Service recommending that all places of public gathering throughout the state be closed. The recommendation was immediately transmitted by wire to all public officials but, inasmuch as the disease had not extended in epidemic form beyond the northern portions of the state and had not appeared at all in the vast majority of counties, the suggestion was added that this recommendation be applied as the needs of the individual community seemed to require.

By this time, there had been established in the Chicago offices of the Department of Public Health a division for the assignment of physicians to the peculiarly afflicted communities, this being carried out through a generous financial provision by the United States Public Health Service. A similar arrangement had also been perfected for the provision of nurses through the Central Division of the American Red Cross.

On October 2, revised and more rigid rules for the control of influenza were promulgated by the State Department of Health and, on October 12 and 16, after conference with the Illinois Influenza Commission, orders were issued prohibiting public dances and public funerals together with all gatherings of a social nature not necessary to the war. These orders, in a more specific way, provided for the closing of night schools, theaters and motion-picture houses, lodge meetings, stocks sales and other public gatherings of well-defined character. Schools were permitted to remain open on condition that there was adequate medical school inspection. Churches were not ordered closed; but church authorities were urged, as good citizens, to restrict meetings to the lowest possible point, while church ventilation, the prevention of crowds and the rejection of persons suffering from acute colds were insisted upon.

In connection with the churches, it was felt that there was definite need for an outlet for the public emotion which was clearly manifesting itself in connection with the epidemic and, for the most part, the churches seem to have manifested good judgment and, incidentally, good citizenship, in handling their people.

The wisdom of the attitude in regard to public schools seems to be borne out by subsequent developments. It is by no means manifest that the closing of schools and the dismissal of children into the communities had any effect in checking the spread of the disease. On the other hand, medical inspection doubtless brought to light thousands of cases which otherwise would have received belated medical attention, if any at all, while the first experience with school inspection and with school nurses, incidental to the epidemic, has convinced scores of Illinois communities of the wisdom of making medical school supervision a permanent matter.

It will be recalled that the epidemic reached Illinois in the midst of a most important political campaign preparatory to a senatorial election. Orders were not issued in regard to political meetings, other than the general orders

to which reference has already been made; but a letter was written to the state chairman of each of the political parties with the result that the campaign was conducted entirely without public gatherings. In this, there was the heartiest coöperation and not one word of protest.

In a state four hundred miles in length, with the epidemic beginning almost at the northern boundary and extending gradually south, it was exceedingly difficult effectively to apply state-wide rules and regulations. At the time the disease had practically disappeared from a northernmost section, the first case had not appeared in a community farther south, so that demands for release from regulatory restrictions, based upon perfectly valid reasons, were received in the same mail that carried protests from other sections against regulations on the ground that no evidence of the disease had as yet appeared.

On this account, it became apparent that the Department of Public Health must be kept constantly advised of existing conditions in every community in the state and, on October 12, local authorities were instructed to forward daily telegraphic reports.

At the same time, all communities were advised that all rules and regulations would continue effective until abatement of such regulations for the individual community should be specifically approved by the State Department of Health, based upon a statement of local conditions, to be furnished on a blank provided for that purpose and signed by the mayor and health officer.

From the onset of the epidemic, up to and including November 30, reasonably active reports from 1,348 Illinois health jurisdictions within which is embraced 60 per cent of the total population of the state, show 193,885 reported cases of pneumonia and influenza, 53,000 of which were in Chicago. In the same areas the reported deaths numbered 13,466 of which 9,129 occurred in Chicago.

Assuming that similar ratios obtained among the other 39 per cent of the population, the total of reported cases in the state, during the eleven weeks ending November 30, was approximately 323,150, with deaths amounting to a staggering total of 22,445.

If it is true, as is quite universally believed, that the reported cases represent not more than 25 per cent of the actual number occurring, the number of cases developed in Illinois in the eleven weeks was approximately 1,300,000.

The proportion of deaths to reported cases for the state as a whole was 6.9 per cent. Down state records show a 3.1 per cent death-rate and Chicago figures indicate a 17.2 per cent death-rate. Figured on the basis of estimated actual cases, rather than on the incomplete total of reported cases, the death-rate for the state was less than two per one hundred cases.

As previously stated, the disease still prevails in epidemic form in some twenty counties of the state, with recurrences in many communities in which the crest was supposed to have been reached a number of weeks ago, so that the total toll in morbidity and mortality for the State of Illinois cannot be even estimated at the present time. It is quite likely that the effects of the epidemic will make themselves apparent in the mortality and morbidity figures of 1920 if not of 1921.

Among the more interesting features of the epidemic of Illinois and perhaps the most important from an economic standpoint, was the tendency to explosive and virulent outbreaks in the large mining centers of the state's great coal fields. The housing conditions in these coal mining centers are exceedingly bad and

these have been rendered even worse by the great pressure that has been brought to bear upon the coal industry through war-time demands. In a number of these mining communities from 60 to 70 per cent of the entire population were afflicted within the first few days of the invasion of the disease and it became necessary in many such communities to supply medical and nursing care and to assume practical control of local health and medical conditions.

During the progress of the epidemic, the State Department of Public Health availed itself of the supplies of immunizing vaccine generously furnished by the Illinois Influenza Commission and by the City of Chicago.

These were distributed from the offices of the Department at Springfield with the following order of precedence: First, to exemption boards for use with Class A registrants; second, to physicians and nurses actually engaged in the care of influenza and pneumonia patients; third, to employees in industries essential to the successful pursuit of the war, and, fourth, to the public at large.

Within the past ten days, through questionnaires sent to the 102 counties of Illinois outside of the City of Chicago, an effort was made to ascertain, in addition to the morbidity and mortality of the disease, the effect of the epidemic upon medical and nursing service and the general attitude on the part of the physicians of these counties in regard to the use and value of immunizing vaccines. It is obvious that the returns, so far as information on the results of the use of immunizing vaccines are concerned, are of no scientific value and, at most, indicate merely popular belief or prejudice. However, with the epidemic not yet abated, an idea of this local impression is not without its practical value.

So far as medical and nursing service were concerned, it was found that the medical forces of the reporting counties had been depleted to the extent of 696 physicians who had gone into military service. Of these, 311 were victims of the epidemic with a total death roll of 24. Of the equally depleted forces of nurses, 356 were afflicted by the disease and 34 died.

It was found that no preventive vaccine had been used in 21 counties and that it had been employed only to a moderate extent in 72 counties Only four counties in the state claimed its general employment. In addition to the vaccine furnished by the Illinois Influenza Commission and the Chicago Health Department, ten others were employed.

As to whether or not these vaccines had served to prevent the spread of infection, 19 counties offered no definite opinion, 29 answered in the affirmative, 27 were of divided opinion and 16 regarded the vaccines as of no preventive value.

Regardless of definite opinions as to the general value of vaccines, based upon the experiences of these counties, the following figures were gleaned from these very interesting but highly unreliable questionnaires: Counties in which there were no cases after vaccination, 23; counties claiming partial protection, 7; counties in which the severity of the disease was decreased by vaccination, 21; counties claiming prevention of pneumonia but not of influenza by vaccination, 1; counties reporting influenza after vaccination, 24; counties claiming pneumonia after vaccination, 4; counties claiming deaths after vaccination, 4; counties claiming absolutely no preventive value, 4; counties claiming disease increased by vaccination, 2.

Illinois Influenza Commission,
R. A. O'Neill, M. D., *Chairman.*
C. St. Clair Drake, M. D.
J. O. Cobb, U. S. P. H. S.

THE DISTRIBUTION OF INFLUENZA BY DIRECT CONTACT —HANDS AND EATING UTENSILS.

COL. CHARLES LYNCH,
Medical Corps, U. S. A.
and
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Medical Corps, U. S. A., Port of Embarkation, Newport News, Va.

Read at the Annual Meeting of the American Public Health Association, December, 1918, at Chicago, Ill.

THE object of this paper is to present the results of an investigation of the incidence of influenza, which results show that the major route of transmission of this infection is by indirect contact. The investigation covered troops stationed at the Port of Embarkation, Newport News, Va.—reported October 19, 1918*—also those at Langley Field, Fortress Monroe, Lee Hall Balloon School, and Camp Lee—a total of over 66,000 troops.

There are two distinct methods of messing troops, and this factor was taken advantage of in making a study of transmission by indirect contact. So the troops are divided into two groups according to their respective method of messing: the one group eating from tableware or mess kit equipment, which is washed in boiling water, and the other group eating from mess kits which are washed by the old line method. The old line method consists in each soldier washing his own mess equipment in water used by other members of the organization. This dishwater common to approximately 200 men was inadequate in amount, never at the boiling point, but usually having a temperature between 40° C. and 50° C. When the common dishwater used by troops is not kept at or near the boiling point, its bacterial content rapidly increases with the washing of each successive mess equipment. In addition to the organisms transferred from the mouth through the mess equipment to the wash-water, this number is added to from contaminated hands, for almost invariably the hands are used as mops when the water is tepid. So then, the contamination of mess kit wash-water by mouth organisms is by two routes of travel; namely, from the mouth to mess equipment, thence to wash-water, also from the nose and mouth to the hands and thence to wash-water.

As each soldier contaminates the wash-water with his own variety of bacteria he at the same time contaminates his mess equipment and his hands with organisms introduced into the water from the mouths of other soldiers. Each successive man as he washes his mess equipment not only adds to the contamination of the wash-water, but with this accumulative contamination there is increased contamination of his washed mess equipment and his hands with organisms from the mouths of other men, and these new varieties of organisms naturally gain access to his mouth either through the mess equipment or the hand route of travel. The viability of the organisms picked up from the wash-water by the mess equipment may be reduced by desiccation before the next meal, but the hand, recently contaminated with the mouth organisms of others, visits the nose and mouth frequently, resulting in the introduction of newly acquired varieties of bacteria.

The possibility then of exchange of the organisms of mouth-borne diseases might

* Lynch and Cumming, "The Rôle of the Hand and the Transmission of Influenza Virus and Secondary Invaders." *The Military Surgeon*, December, 1918.

SERIES B, TABLE A, CAMP STUART.

TROOPS USING TABLEWARE OR MESS KITS WHICH ARE BOILED.

Organization	Strength	Sept. 30	Oct. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total
Detachment	63	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3
Ordnance Depot																								
Med. Det.	240	0	0	0	0	0	1	6	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	4
Med. Sup. Depot	89	0	1	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	19
382 Bakery Co	239	2	1	2	1	1	1	3	0	2	5	1	0	0	0	0	0	0	0	0	0	0	0	11
405 Res. Lab. Bat	105	1	1	2	1	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Troop D, 11th Cav	241	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
Mal. Drainage Det																								
Total	977	3	4	4	3	2	6	4	2	4	5	2	0	0	1	0	0	1	0	0	0	0	0	329
MESS KITS WASHED BY OLD LINE METHODS.																								
347 Labor Bat	1,136	0	0	0	0	0	16	69	166	15	14	19	1	12	1	6	2	0	2	0	6	0	0	16
322 Guard & Fire Co	99	2	1	1	5	2	0	2	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	24
324 Guard & Fire Co	194	2	1	3	0	0	5	2	1	1	3	1	0	0	1	1	0	1	1	1	1	1	0	18
225 Guard & Fire Co	199	2	1	3	1	0	0	0	0	1	0	2	1	1	0	1	0	1	1	1	1	0	0	7
Port Utilities																								4
Q. M. Corps	63	1	0	0	1	0	2	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	
386 Mach. Shop Unit	25	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	
Total	1,716	8	3	8	7	2	23	73	168	18	18	26	3	14	2	8	2	2	3	1	7	1	1	398
Grand Total	2,693																							439

be remote if such exchange existed at only a single meal, but this is not the case, for so long as the organization remains intact and washes its mess equipment in tepid water, the chances of exchange exist not only a single time on a single day, but three times a day over a long period. Furthermore this exchange is not limited to a small group of say three to five men, but to a very large group, composed of a company of 250 men. In a large group such as this there is increased opportunity for the interchange of pathogenic bacteria, for the larger the group, the greater the possibility of carriers, and the more highly contaminated is the water. Warm dishwater is then the most intimate and frequent point of contact among troops for the exchange of mouth organisms.

On the basis of the foregoing hypothesis the following charts and laboratory experimentations are presented:

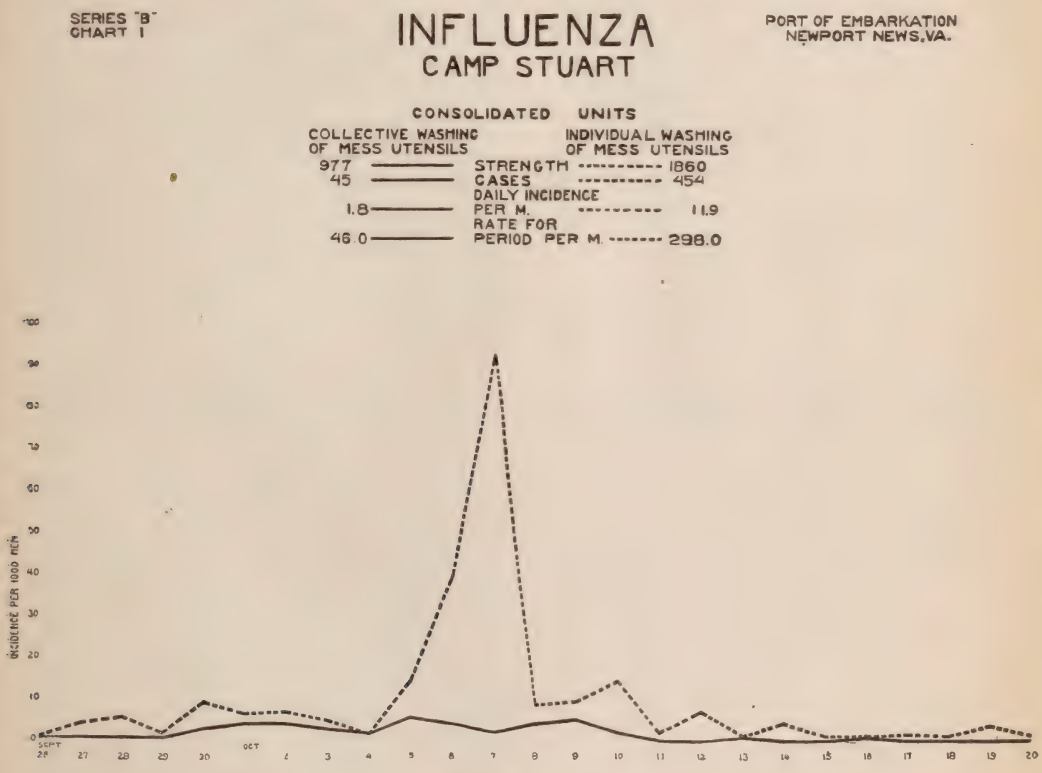
Camp Stuart

Series B, Chart I, Table A.

Camp Stuart, one of the debarkation camps of the port, has approximately 3,000 permanent troops. Some of these eat from tableware, others eat from mess kits. Some organizations washed their mess kits in boiling water, which was kept over fire, others washed theirs by the old line method. So these troops are grouped according to whether or not the chain of transmission by indirect contact through mess kit wash-water was broken by the use of boiling water.

In the group of 977 troops which eat from tableware or mess kits which are washed in boiling water there were 45 cases, giving a rate for the period of the epidemic of 46 per 1,000, while in the other group of 1,860 troops which washed their mess equipment by the old line method in tepid water there were 454 cases, giving a rate of 298 per 1,000.

. When these two groups are compared it is found that there are 84 per cent more cases in that group in which the chain of transmission by indirect contact was not broken because tepid mess kit wash-water was used. In the one group there was a continuous low grade daily incidence during the entire period of the epidemic. In the other group, in addition to a period of low grade epidemicity, there was an explosive outbreak, indicative of mass infection for a large number of individuals by indirect contact. The rapid rise, the high peak—93 per 1,000—can be accounted for only by indirect contact transmission.



Series B, Chart I.

Camp Lee

Series B, Chart II, Table B.

A study of the influenza epidemic at Camp Lee is of particular interest in that this is a mobilization camp, composed for the most part of training troops. The troops are chosen for the most part because of their exceptional physique and intelligence. For the purpose of the investigation, 26,223 troops are grouped into those using tableware and those using mess kits. Of those using tableware the troops of the Officers' Training School of over 5,000 has a low grade incidence of the infection notwithstanding the fact that they were in close association in crowded class rooms during most of the day. At no time was the daily incidence over 10 per 1,000. On the other hand the Infantry Replacement and Training Troops and the Veterinary Training Troops,—16,364 troops,—who were for the most part in the open and among whom there was no crowding except when

SERIES B, TABLE B, CAMP LEE.

TROOPS USING TABLEWARE OR MESS KITS WHICH ARE BOILED.

Organization	Strength	Oct. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total
School for Cooks and Bakers	1,250	4	5	1	5	0	3	6	4	0	3	0	5	3	1	0	0	0	1	0	0	0	0	0	0	0	41
Base Hosp. M. Dept.	1,133	0	0	3	8	15	4	3	4	0	0	16	4	6	1	5	3	6	0	2	5	2	1	6	1	3	98
Q. M. Corps	948	0	17	9	5	0	3	13	9	9	3	3	7	0	3	0	6	2	2	1	0	1	0	2	1	0	96
Officers Training School	6,528	57	65	59	33	27	21	24	21	16	12	11	5	8	6	10	1	8	4	3	3	2	3	2	3	3	401
Total	9,859	61	87	72	51	42	31	46	38	25	18	30	21	17	11	15	10	16	7	6	8	5	4	10	5	6	642
MESS KITS WASHED BY USUAL LINE METHOD.																											
Vet. Training School	4,293	10	16	42	67	116	118	184	229	390	260	305	202	135	37	25	24	10	11	9	7	0	0	0	1	1	2,199
Inf. Repl. & Tr. Camp	12,071	38	37	40	41	58	58	44	84	150	211	435	306	256	219	269	295	195	184	171	96	83	60	64	48	43	3,485
Total	16,364	48	53	82	108	174	176	228	313	540	471	740	508	391	256	294	319	205	195	180	103	83	60	64	49	44	5,684
Grand Total	26,223																										6,326

they were off duty, had a daily incidence which in one group reached 87 per 1,000. If crowding or continuous association had been a large factor in transmission the higher incidence should have been among troops of the Officers' Training School. This is not the case,—the higher incidence was found among those troops which used mess kits and washed them by the old line method. In fact, the rate of infection was five times greater in this group.

This is not an isolated example of low daily incidence among troops in which there is continuous close association, and supposedly much transmission by direct contact. Our investigation of influenza among 6,000 troops shows that direct contact infection through the air route is only subsidiary to the major and minor routes by indirect contact through the touch route.

Lee Hall Balloon School

Series B, Chart III, Table C.

The investigation at Lee Hall Balloon School is peculiar in that there is a higher rate of infection among those using tableware than among those using mess kits. This is one of two exceptions which we have found in our investigations. The rate for 338 men who used tableware was 304 per 1,000, and for 1,693 men who used mess kits there was a rate of 202 per 1,000. As a possible explanation of this finding it may be said that in several instances the epidemiology of the infection has led us to believe that it may be food-borne. If this is the case we have ready explanation of the explosive outbreak among those using tableware, for in addition to one cook, three kitchen helpers developed the infection early in the epidemic.

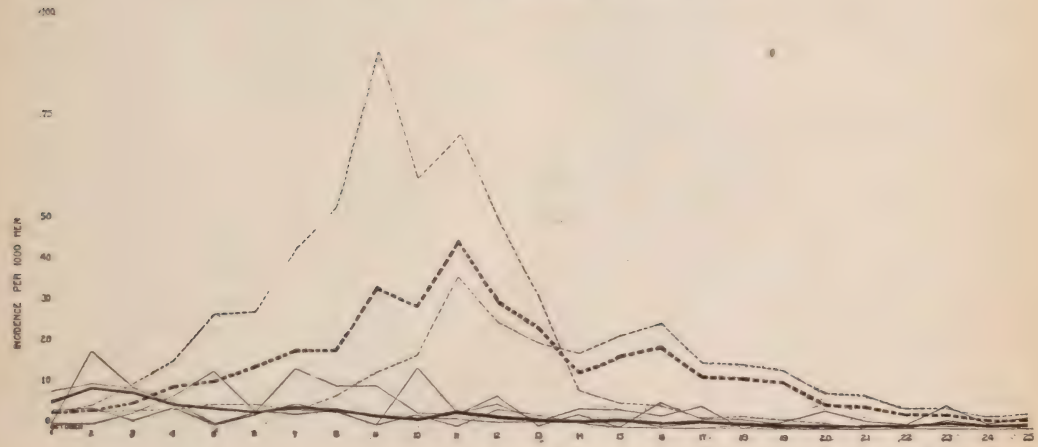
Among troops using mess kits there was a comparative low daily incidence and no sharp outbreak. The rate is moreover much higher than would be expected, for

SERIES "B"
CHART II

INFLUENZA
CAMP LEE

PORT OF EMBARKATION
NEWPORT NEWS, VA.

COLLECTIVE WASHING OF MESS UTENSILS	ORGANIZATIONS	INDIVIDUAL WASHING OF MESS UTENSILS
OFFICERS' TR. SCHOOL COOKS' AND BAKERS' BASE HOSP. DET. Q.M.C.		INF. REPL. AND TR. CAMP VET. TR. SCHOOL
	CONSOLIDATED	
9859	STRENGTH	16364
642	CASES	5684
2.6	DAILY RATE PER M.	13.9
65.1	PERIOD RATE PER M.	347.3



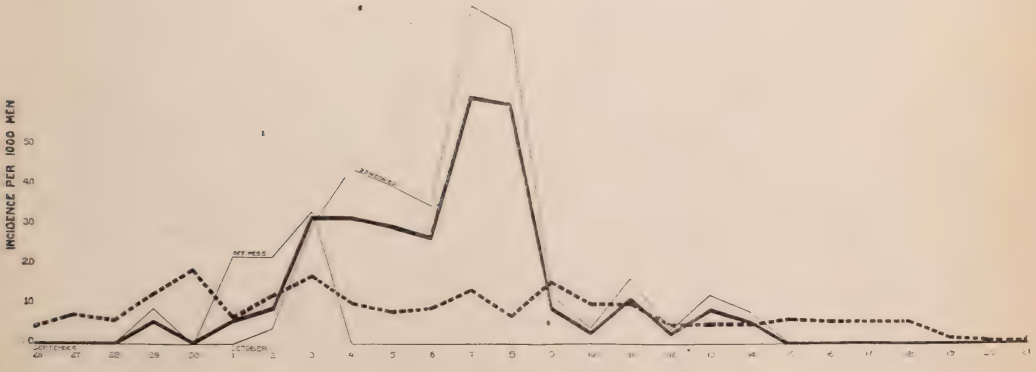
Series B, Chart II.

SERIES "B"
CHART III

INFLUENZA
BALLOON SCHOOL - LEE HALL - VA.

PORT OF EMBARKATION
NEWPORT NEWS, VA.

COLLECTIVE WASHING OF MESS UTENSILS		INDIVIDUAL WASHING OF MESS UTENSILS OVER FIRE
OFFICERS' MESS 22ND CONSTRUCTION CO.		BALLOON COS. 21, 22, 23, 27, 28 CONST'N. COS. 20, 21, 23.
	CONSOLIDATED	
338	STRENGTH	1693
103	CASES	342
11.7	AV. DAILY INCIDENCE PER M.	8.
304.7	PERIOD RATE PER M.	202.



Series B, Chart III.

SERIES B, TABLE C, LEE HALL BALLOON SCHOOL.

TROOPS USING TABLEWARE.

Organization	Strength	Sept. 26	27	28	29	30	Oct. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total
22 Const. Co.	248	0	0	0	2	0	0	1	8	11	10	9	21	20	3	1	4	1	3	2	0	0	0	0	0	0	0	96
Officers Mess.	90	0	0	0	0	0	2	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Total	338	0	0	0	2	0	2	3	11	11	10	9	21	20	3	1	4	1	3	2	0	0	0	0	0	0	0	103

TROOPS USING MESS KITS WHICH ARE BOILED OVER FIRE.

21st Bal. Co.	193	4	3	3	9	18	2	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
22nd " "	191	0	0	0	1	2	0	0	1	2	1	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	15
23rd " "	197	1	0	0	1	3	1	2	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	51
27th " "	179	1	3	6	4	8	4	1	6	1	2	2	5	0	5	1	2	0	0	0	3	2	1	0	0	0	0	45
28th " "	184	0	1	0	2	3	1	0	4	5	0	5	9	0	4	5	0	0	0	3	2	1	1	1	1	0	1	44
20th Const. Co.	251	0	3	0	1	0	2	3	5	4	1	4	5	0	2	0	4	3	0	2	1	1	1	1	0	1	0	43
21st " "	250	1	2	0	2	2	1	3	1	1	4	1	1	4	2	1	2	1	1	0	2	1	3	5	1	0	1	43
23rd " "	248	0	0	0	0	0	0	7	6	1	5	0	1	4	11	8	8	4	7	3	5	6	5	3	1	0	0	85
Total	1,693	7	12	9	20	36	11	20	26	16	13	15	23	11	26	16	16	8	8	8	10	9	9	9	2	1	1	342
Grand Total	2,031																											445

SERIES B, TABLE D, FORTRESS MONROE AND LANGLEY FIELD.

TROOPS USING TABLEWARE OR MESS KITS WHICH ARE BOILED.

Organization	Strength	Sept. 30	Oct. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
Fortress Monroe	12,500	54	47	54	55	43	66	73	48	39	38	37	27	38	18	21	26	13	28	24	17	19	16	17	9	827

MESS KITS WASHED BY USUAL LINE METHOD.

Langley Field	205	1	2	2	0	3	2	1	12	27	2	11	0	1	5	1	1	0	0	0	0	0	0	0	0	71
28th Co.	206	2	0	2	0	2	6	2	3	13	0	15	1	1	1	0	0	0	0	1	0	0	0	1	0	50
29th Co.	206	0	0	0	0	0	0	2	0	11	0	25	0	1	1	0	1	1	0	0	0	0	0	0	0	42
30th Co.	206	0	0	0	1	3	2	0	3	15	1	6	0	3	2	0	0	1	0	0	0	0	0	0	1	38
31st Co.	823	3	2	4	1	8	10	5	18	66	3	57	1	6	9	1	2	2	0	1	0	0	0	1	1	201
Total	13,323																									1,028
Grand Total																										

this group was supposed to wash their mess kits in boiling water kept over a fire box. The fire, however, was not sufficient to keep the water in all containers hot. Often the water would be only tepid, and occasionally the rinse water would not be kept over fire. It is essential that the contents of the several containers of mess kit wash-water be kept at or near the boiling point. If the contents of all the G. I. cans are kept boiling, hand contamination does not take place and there is no accumulative contamination of the water.

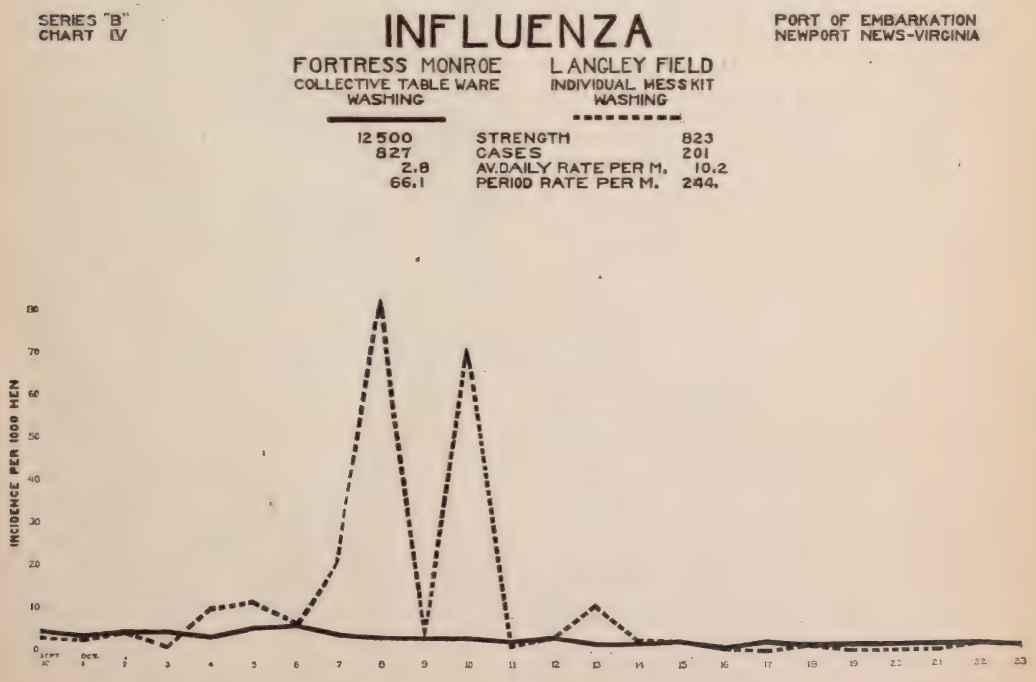
Fortress Monroe and Langley Field

Series B, Chart IV, Table D.

At Fortress Monroe the troops consisted of the C. A. C.—strength 3,500—and a training school of 8,500 troops. All these troops were quartered in barracks and ate from tableware. At Langley Field there were 823 troops, composed of labor organizations. These were housed in barracks and ate from mess kit equipment which was washed by the old line method.

Although these two groups belong to different army branches they were not far distant one from the other, both had intimate association with the same civil communities, and from the sanitary point of view the method of messing was the only outstanding feature of difference between them.

At Fortress Monroe where tableware was used the highest daily incidence of the infection was 6 per 1,000 as contrasted to 83 per 1,000 at Langley Field where mess kits were washed by the old line method. At Fortress Monroe the rate of infection per 1,000 strength was 66.1 as against 244 at Langley Field—and an increased incidence in the latter group over the former of 73 per cent.



Series B, Chart IV.

Consolidation of Series A and B, Chart V, Table E.

The consolidated chart in addition to those posts here reported, includes a study of six, which have been previously reported, in the *Military Surgeon*, December number, 1918. A consolidation of these two series, A and B, gives a total of 66,076 troops. These are about equally divided according to their respective methods of messing. There was a total of 33,452 officers and men who ate from tableware. The rate of infection for this group was 51.1 per 1,000; while in the other group comprising 32,624 men, who ate from mess kits, the rate of infection with its paralleling high mortality was 252 per 1,000. The ratio of cases in the two groups is 1 to 5, an increase of 80 per cent in that group in which the chain of transmission by indirect contact through contaminated mess kit wash-water was not broken.

Let us consider the incidence of pneumonia from the standpoint of sanitary messing facilities. Troops at Camp Alexander are colored and composed of stevedore and labor organizations. As only physically fit men were to be sent overseas it became necessary to form so-called reserve labor battalions of such men as had chronic infections and physical disabilities. These organizations performed certain duties at the port, while at the same time they were given medical attention with the idea of reconstruction. Three reserve labor battalions of physically unfit men were formed at Camp Alexander in February. They numbered approximately 3,600. The sanitary situation was such that these three battalions were provided with incinerators. In these, facilities were provided for boiling mess kit wash-water. The remaining troops in this camp, composed of from 3,500 to 4,000 healthy stevedores, washed their mess kits by the old line method in warm water. The numerical strength of these two groups is approximately the same. Their living conditions were as nearly the same as could be—with one exception. The reserve labor battalion washed their mess equipment in boiling water; while the stevedore battalions washed theirs in warm water. For the period from March to November 1st there were but 10 deaths from pneumonia in the reserve labor battalions while on the other hand in that organization in which the chain of transmission was not broken by boiling water, there were 81 deaths from this infection, a ratio of 1 to 8 or 89 per cent more deaths among the stevedores than among the physically unfit labor battalions. The ratio of influenza in these two organizations was 1 to 12 and this incidence, as will be noted, parallels closely the ratio of deaths in the two organizations.

Streptococcus pneumonia was the great scourge of our army last winter. It caused more deaths as a complication of measles than all other infections combined. In our examination of 145 removed tonsils, hemolytic streptococci were found in 82 per cent. They are not the primary cause of disease, but lie in wait for the primary virus infections—as influenza, measles, or scarlet fever—to prepare the soil for the entrance of secondary invaders. The virus infections *per se* are not fatal, but their chief characteristic is that of lowering the body resistance for the fatal secondary invaders—pneumococcus, streptococcus hemolyticus and viridans.

Remarkable as it may seem, the latter are more fatal during the winter season, which is the season of highest prevalence of the virus infections. In fact these virus infections are but rarely complicated in the summer, while in the winter there are approximately 12 per cent complications, and a mortality as high as 82 per cent.

SERIES B, TABLE E, CONSOLIDATION SERIES A AND B.

TROOPS USING TABLEWARE OR MESS KITS WHICH ARE BOILED.

Organization	*Strength*	*Days* 1	2	3	4	5	6	7	8	9	10	11	14	13	14	*Total Cases*
Lee Hall	338	0	2	3	11	11	10	9	21	20	3	1	4	1	3	99
Camp Stuart	977	3	4	4	3	2	6	4	2	4	5	2	0	0	0	39
Fortress Monroe	12,500	54	47	54	55	43	66	73	48	39	38	37	27	38	18	637
Langley Field	257	0	0	0	0	0	0	0	2	1	0	4	0	4	1	13
Camp Alexander	4,050	1	3	1	0	8	1	1	8	10	2	1	3	0	4	35
Pig Point	1,150	2	1	0	16	6	13	10	6	5	5	18	6	4	0	92
Morrison	217	4	4	5	1	4	6	2	2	1	1	2	0	0	0	32
Camp Hill	1,785	1	3	3	8	5	6	7	7	1	4	12	17	7	1	82
Surgeon's Office	1,630	3	0	3	3	9	9	8	9	17	5	5	4	1	0	76
Q. M. C. Corps	689	2	3	1	9	2	7	9	4	3	5	5	6	3	6	65
Camp Lee	9,859	73	78	77	48	37	43	41	28	22	31	27	11	13	11	540
Total	33,452	143	145	151	154	127	167	164	117	123	99	114	78	71	44	1,710
MESS KITS WASHED BY USUAL LINE METHOD.																
Lee Hall	1,683	34	11	20	28	16	13	15	23	11	26	16	16	8	8	245
Camp Stuart	1,860	17	12	13	9	3	27	73	170	17	18	27	4	14	3	403
Langley Field	823	3	2	4	1	8	10	5	18	66	3	57	1	6	9	199
Alexander	3,400	12	79	73	73	17	25	7	23	25	10	6	7	9	4	370
Pig Point	445	3	5	3	15	8	24	16	11	18	9	18	7	11	12	160
Morrison	2,943	103	72	71	60	119	141	94	164	83	130	162	13	0	0	1,220
Camp Hill	4,015	0	1	0	10	6	9	9	19	35	132	18	22	26	17	304
Att. Surgeon's	690	3	0	2	1	5	5	8	9	12	11	4	0	22	5	87
Q. M. Corps	401	4	22	13	20	18	31	17	19	11	17	4	3	9	3	191
Camp Lee	16,364	54	102	192	278	551	424	440	439	659	555	500	386	306	133	5,019
Total	32,624	233	306	391	495	751	709	684	895	937	909	812	459	411	194	8,208
Grand Total	66,076															9,918

SERIES "B"
NO. V

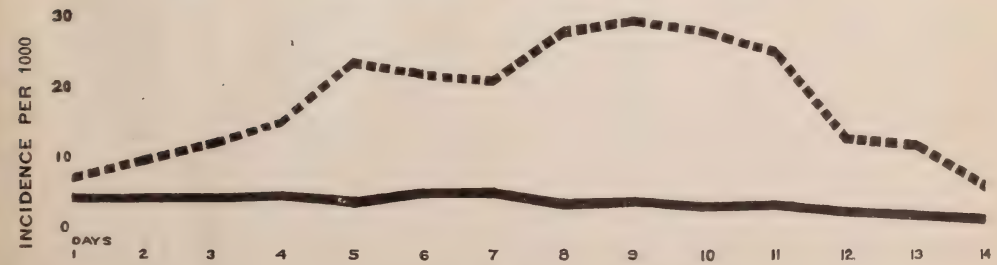
INFLUENZA

CONSOLIDATED REPORT

PORT OF EMBARKATION
NEWPORT NEWS
VIRGINIA.

COLLECTIVE TABLE WARE WASHING STRENGTH	CASES		ORGANIZATIONS	INDIVIDUAL MESS KIT WASHING STRENGTH	CASES
689	65	SERIES "A"	DEPOT Q.M.C.	401	191
1630	76		ATT. SURGEON'S	690	87
1785	82		CAMP HILL	4015	304
217	32		MORRISON	2943	1220
1150	92		PIG POINT	445	160
4050	35		ALEXANDER	3400	370
257	13		LANGLEY FIELD	823	199
977	39	SERIES "B"	CAMP STUART	1860	403
9859	540		CAMP LEE	16364	5019
338	99		LEE HALL	1683	245
12500	637		FORT. MONROE		
33452	1710		TOTALS	32624	8208

3.7 DAILY INCIDENCE PER M. 18.
51.1 PERIOD RATE PER M. 252.



SERIES B, CHART V.

In civil life only 5 per cent of average throats harbor hemolytic streptococci. On the other hand, among troops, we found that 35 per cent of measles cases harbored this organism upon entering the hospital; 85 per cent of these developed streptococcus pneumonia as a complication of measles, and during the month of January 82 per cent terminated fatally. Why this epidemic of measles and its fatal streptococcus pneumonia among troops? If warm mess kit wash-water is, as we have shown, responsible for approximately 80 per cent of the cases of influenza can it not be concluded from our experiences in isolating streptococci almost invariably from the hands of streptococcus carriers, that the epidemic of streptococcus pneumonia was due to the facility of transmission through the mess kit wash-water?

Hand Contamination.

As a further support of our contention that the spread of mouth borne infections is chiefly by indirect transmission the following experimental evidence is presented:

This work was undertaken but recently, and although a total of 160 separate experiments have been made the results of these are given only in general terms. In warm weather, when a number of men wash their hands in warm clear water for a period of 30 seconds, each man contributes 500,000 organisms and in cold weather each man contributes 2,000,000 at a single washing. If warm, soapy water is used this number is increased to 4,000,000 on warm days, while on cold days the number is 240,000,000. This increased contamination in cold weather is accounted for by the excessive contamination of the hands with organisms from the nose and mouth; this due to increased coryza, sneezing and coughing. We believe that the increased prevalence of the so-called respiratory diseases during the winter months can be accounted for by the increased mucous secretions during that period.

In a series of experiments we have succeeded in isolating diphtheria bacilli from the hands of diphtheria carriers, and hemolytic streptococci from the hands of streptococcus carriers. In the latter case we were able to isolate large numbers of streptococci on every trial; in addition it may be pointed out that the hands of these carriers are more highly contaminated with common organisms than the hands of average persons.

When a company of men wash their mess equipment in warm soapy water each man contributes about 4,000,000 bacteria. A large percentage of these are, of course, mouth organisms. When warm clear water is used only about one-third or 1,600,000 organisms are contributed by each man.

In the foregoing experiments the hands were not used as a mop to wash off the mess equipment, and it is a remarkable fact that when the hand is so used the wash-water is not so highly contaminated. In a set of experiments in which the hand was used as a mop each man contributed to warm soapy water and clear water 8,000,000 and 260,000 respectively. The only conclusion to be drawn from these findings is that when the hands are used to rub off the mess equipment the particles of food, fat, etc., and the mouth organisms adherent thereto cling to the fingers. So then the man's hands become highly contaminated with his own mouth organisms in addition to those picked up from the wash-water. He transfers the newly acquired organisms to his own mouth and contaminates inanimate object conveyors with his highly contaminated hands to no small degree. It is obvious then that this method of washing mess kits adds greatly to the possibility

of transmission of mouth-borne diseases by indirect contact through intermediate conveyors as well as from one individual to another through the wash-water as a common point of contact.

There is no question but that the average individual's hands are highly contaminated under ordinary circumstances with his own mouth organisms, and if he be a carrier, a convalescent, or a mild unrecognized case of any one of the acute infectious diseases, his hands will certainly be contaminated with the disease virus. Many persons smother their cough with their hand. In addition to the contamination of the hand by coughing, the hand visits the face and particularly the mouth at frequent intervals and the hand so contaminated handles things —door knobs, pencils, toilet articles, telephone receivers—which other persons handle. After the saliva has become dried its distribution is limited, but when the germ laden saliva is moist it is spread with great facility to conveyors, and to the hands of others. The hands of typhoid carriers have been repeatedly incriminated as spreaders of typhoid fever. If the hand of a typhoid carrier is liable to pollution, is it not a foregone conclusion that contamination of the hand in the case of one infected with sputum-borne disease, is increased many fold?

Bacterial Content of Eating Utensil Wash-Water.

The bacterial count of mess kit wash-water varies between 1,000 and 157,000 per cc. This count depends upon the temperature and the amount of the water, and the number of men using it. As a result of our investigation in the Southern Department last winter we found that the average temperature was 47° C. and the bacteria was 40,000 per cc. This count is about the same as average milk, but it is to be pointed out that bacteria in mess kit wash-water would naturally be those in which the human host is the carrier; while in milk this is not usually the case.

Hands and mess equipment of non-immunes, contaminated with disease producing organisms from the mouths of others through highly polluted common wash-water, readily gain access to the mouths of these non-immunes and there deposit organisms which produce a carrier state or specific disease.

If mess kit wash-water common to an organization is responsible for explosive epidemics in the army, it occurred to us that perhaps common dishwater in public eating houses is, to a less extent, responsible for the spread of mouth-borne diseases. In this instance the contamination of the hand is eliminated for it does not come in contact with the wash-water; so the only avenue of spread is through eating utensils, and this accounts for the lower incidence in civil life.

In order to make plain our argument in favor of the transmission of mouth-borne diseases through restaurant and hotel table utensils we report that the examination of 54 specimens of dishwater from 10 different restaurants showed the average bacterial count to be 4,000,000 per cc. We have isolated 12,000,000 organisms from the ladle of a spoon used by a streptococcus carrier. Many of these organisms were streptococci. We know that streptococci survive for some time in water and are resistant to desiccation for at least several days on a dried surface. In general the same holds true for many other diseases producing organisms. So we have no doubt but that disease producing germs may be transmitted through common eating utensils which are washed by the usual method in tepid water. The number of organisms per cc. in restaurant dishwater is far greater than in many specimens of sewage, and one would

not intentionally wash eating utensils in sewage.

A spoon may be contaminated with a culture of known organism, then dried and washed with eating utensils in the usual manner and finally identified by the original contamination which has adhered to it during the washing process. From these facts it may be deduced that in civil life as well as in the army, only to a far greater degree in the latter, eating utensils constitute the most intimate and frequent point of indirect contact for the spread of mouth-borne diseases.

Much has been accomplished in protecting our public water supplies against sewage pollution with the consequent reduction in the incidence of intestinal-borne diseases. Can a similar advance be made in the reduction of the incidence of mouth-borne diseases by protecting the public against the use of saliva polluted eating utensils? An enormous advance has been made by the propaganda against the common towel and drinking cup, but will not a far greater good be accomplished by popularizing the disinfection of eating utensils by boiling water? This applies to the home as well as to the public hostelry.

We have been struck by the rapid spread of influenza in a family. We believe that, as among troops so also in the family, this is not by direct contact but by indirect contact. Members of a family whose daily occupation calls them away from home, eliminating them to a large extent from intimate contact, develop the disease as do those in which there is a constant close association. Is it possible that eating utensils are responsible for this rapid and almost constant spread in a household? The housemaid, as does the restaurant helper, washes the tableware in warm tepid water. The warm dish-water in the home as, also in the restaurant, constitutes not only the vehicle for the spread of contamination from one piece of tableware to another, but at the same time furnishes an optimum temperature, a fluid medium, and an intermediate conveyor for large and small groups of individuals, and the larger the group the greater the possibility of carriers and of infecting non-immunes.

From the foregoing considerations the following principles may be deduced.

1. The causal organisms of sputum-borne diseases, resident in the mouth and nose, leave the body of the infected through these orifices and enter the non-infected through similar channels.

2. The vehicles for the transfer of germ-laden saliva from, and to, the mouth and nose, are the hands, and eating utensils.

3. Crowd diseases have their origin, to a large extent, in the constant accumulative contamination of intermediate objects, which are the distributing centers of the infection for many hands and many mouths.

4. Food may be infected by contaminated hands and then spread the sputum-borne infections, as well as the intestinal-borne infection.

5. In all infectious diseases there are major and minor routes of transmission from the sick to the well. In military life the mess kit wash-water has proved to be the major route; intermediate object conveyors by hand touch, the minor route. Droplet infection is subsidiary to both, because explosive outbreaks do not result from droplet infection and as far as mouth pathogens are concerned, 18 inches is about the maximum distance that plates on a level with the mouth can be infected by droplets expelled through the act of coughing. Moreover, since the weight of these droplets (even the finest spray) is such that they fall rapidly, the probability of infection by the flight of organisms is remote.

6. It is true that the chain of both direct and indirect transmission may be broken in several ways; one of these is by wearing the mask. This acts in two ways—it prevents droplets being expelled from the mouth, and it also prevents the hands being put in the mouth. On this basis the value of the face mask may be emphasized. Its value, however, lies in the fact that it serves as a barrier between the hand and the mouth rather than between the mouth and the outside air. The wearing of the mask by a sick man is not the most effective procedure, for it only affects the sick man from whom infection is relatively infrequent as compared with carriers, unrecognized mild cases, and convalescents. The relative importance of the face mask to clean hands is just about the same as in the case of the surgeon who would wear a mask but neglect to wash his hands. In order for the mask to be effective the wearer must wash his hands before it is removed. Was there a lower rate of infection in cities where the populace wore masks as required by local ordinance? In San Francisco the wearing of masks was required; the rate per 1,000 according to the United States Public Health Reports, was 46 for seven weeks. In New York masks were not worn and the rate was 47 for eleven weeks.

7. Very probably droplet infection, when it does occur, is indirect, rather than direct, that is to say, mouth spray does not immediately reach the mouth of another person, but reaches the hands and intermediate objects from which germ-laden saliva is picked up and carried by the hand to the mouth of the non-infected.

8. In the prevention of sputum-borne epidemics, the hygiene of the hand and the hygiene of eating utensils is of paramount importance; clean hands, disinfected eating utensils, the avoidance of intermediate object conveyors handled by many persons, the frequent cleansing of such conveyors, the keeping the hands away from the mouth and nose, and eliminating the sick from the kitchen, these are the essentials of such prevention.

But above all is the necessity for popularizing our knowledge that it is the sputum-soiled hand, and the contaminated eating utensil which play the chief rôle in mouth-to-mouth infections.

Only through popular instruction and coöperation can such epidemics be prevented and human life conserved.

The authors wish to express their appreciation for the able assistance rendered by Major W. Colby Rucker, U. S. P. H. S., and Captain Charles B. Spruit, M. C., and 1st Lieut. Ernest J. Aten, M. C., in field as well as in laboratory investigations.

Addendum.

In the report submitted by us at Tuesday's meeting it was shown that 80 per cent of the infections among 66,000 troops were due to unsanitary messing arrangements. Applying this fact to civil life it occurred to us that perhaps hand washing of dishes in tepid water at public eating houses is (to a less extent) responsible for the spread of mouth-borne, family or group, diseases.

From the foregoing facts the logical

Hotels and Restaurants	Employees	Employees Having Influenza	Rate Per 1,000	Method Dishwashing
6 first-class restaurants and hotels in business district (cooks and dining room help)	1,350	13	9	machine and boiling water
6 eating places near R. R. depot in poor district (cooks and dining room help)	25	7	240	hand washed
Department Stores				
Employees dining room in 4 department stores in shopping district	13,500	181	13	machine and boiling water
Employees dining room in one department store in shopping district	3,100	259 (11 deaths)	84	hand washed

conclusion is that organisms can be transferred from the mouth of one individual to that of another by means of eating utensils washed in the ordinary way. Since the aforementioned report was presented, a canvass of three types of public eating places in a large city has been made with the tabulated results (page 37), relative to the recent epidemic of influenza.

It will be noted that there are 85 per cent more cases among those who eat from hand washed dishes which are not disinfected by boiling water.

Is not this a suggestion for sanitary dishwashing,—immersion in boiling water, —in the home, as well as in public eating places and does it not give us a new conception of what we mean by crowd disease?

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THE ORGANIZATION OF FEDERAL, STATE AND LOCAL HEALTH FORCES.

ALAN J. MCLAUGHLIN,
Assistant Surgeon U. S. P. H. S., General, Washington, D. C.

Read at the Annual Meeting of the American Public Health Association, Chicago, Ill., December 9–12, 1918.

I PROBABLY shall say things that will provoke discussion. I feel that in the question of organization to meet this national crisis federal health forces in this country faced a situation that presented some extraordinary features. In the first place, if we search the history of this country, we will fail to find a parallel in its appalling loss of life, in its morbidity or mortality, in any epidemic of any kind that has visited the United States. An epidemic of yellow fever that cost one thousand lives, spread over the territory that this has been spread over, would throw the whole country into a panic. This country, with a placidity that is admirable, stood quietly by and sustained a loss of over 300,000 lives, and outside of this hall you hear very little about it. I think we are justified in keeping up this discussion if it lasts until midnight. While I feel some of you may feel disappointed because you do not know all about it, that is no reason why we should not keep on discussing until we find some fundamental facts and try to get on a common ground as far as we may.

We have had epidemics, but as a rule they take a state or group of states, leaving the rest of the country from which personnel may be drawn to assist the afflicted portion.

When this epidemic broke out, a great majority of the medical and nursing personnel was already in the army or navy, so that for two reasons the available personnel from which to draw was very limited.

The next difficulty was the lack of accurate knowledge of the cause and mode of transmission of this disease. We might as well admit it, we have an absolute lack of knowledge of the cause and transmission of this disease. The result of that is another lack which is a very serious one to the officer trying to suppress disease—the lack of biologic products with which to suppress it. After we acquire sufficient knowledge about the cause of this disease, we can develop in the laboratories biologic products for prophylactic diagnostic and therapeutic use.

The lack of knowledge of the etiology and transmission of the disease makes our quarantine measures peculiarly futile. Maritime quarantine—usually a very exact procedure with most diseases—does not prevent the spread of this disease.

For instance, this disease was not present in Alaska. A ship was going to Alaska from western ports. It was deemed best to put on quarantine to prevent the entrance of the disease into Alaska. I have this information from Dr. Tuttle, health officer of Washington. A triple examination of the passengers was made separately by three individuals—one an officer of the public health service. The results were such they weeded out those considered as possible carriers of this disease. The ship sailed, and on that long voyage to Nome nothing happened on the ship—no sickness. The passengers landed and distributed themselves, and within the period of incubation, the disease appeared and spread rapidly in Alaska. The carriers were on the ship, but quarantine was futile to weed them out with the present knowledge we have.

The quarantine of the sick is an obvious thing to do, but after all, we must remember by making that sick individual safe, we are quarantining the least active and least dangerous of the carriers of the disease. For the sick individual, there are hundreds of others who cannot come under any quarantine.

The wearing of the mask in a way is a protection to the individual very well worth a trial. But after all, a man may protect himself from this disease or any other disease by crawling into a hole and staying there. But most of us would have to come out of the hole sooner or later.

Many of the measures suggested are not practical. Now the restrictive measures have been criticised by some, although pretty generally employed to restrict gatherings of people, and they were based on sound general principles. In the absence of any definite knowledge such as we have against cholera, or yellow fever, I ask you gentlemen, What other sane procedure was there than to act on general principles, considering this a contagious disease, and to prevent the gatherings of people in close contact, where presumably greater spread of the infection would occur? The restrictive measures had one result in a great many places, if no other may be conceded to it. That was this: It tended to prevent the sudden rise and enabled the communities to furnish sick and nursing relief to those who needed it by distributing the load, making a flatter curve, and giving the authorities time to organize forces for sick relief.

Under these circumstances, the work became largely a question of furnishing sick relief, as far as the Federal government was concerned. It is futile to talk of suppressing the spread of a disease of this character with our present knowledge. But the furnishing of sick relief was a great necessity. Congress promptly appropriated a million dollars for the furnishing of this needed aid. There were sections in the country which were absolutely stripped of doctors, especially in the agricultural states like Nebraska, and North and South Dakota, where the small medical population had been taken into the army. In these states it was necessary to get doctors in from outside, but we tried to avoid robbing Peter to pay Paul. So that in every state there was a representative of the United States Public Health Service to handle the relief which the Federal government was able to give. We had with the state health officer and the public health service officer a representative of the American Red Cross appointed for each state. It was necessary to have this kind of an organization in order to utilize what I spoke of a moment ago as the very limited personnel, to the best advantage, because from a central point like Washington, it was impossible to estimate the relative urgency of calls from two towns a thou-

sand miles away, whereas the man in the state could estimate their urgency.

The need for nurses was never fully supplied, the principal cause being that so many Red Cross nurses were in the army, but they did the best they could under very trying circumstances. Their primary object was to supply nurses for the army, but they have been criticised, just as the army has been criticised for not furnishing doctors to the civilian population. The Red Cross did the best they could, but were not able to furnish sufficient nurses, so the local authorities were compelled to take the nurses available, and with them, to train intelligent women as nursing aides. In many cases the Catholic nursing sisters rendered very great assistance, especially in the mining regions of eastern Kentucky and Pennsylvania, and volunteered in great numbers in the city of Washington. The non-nursing sisters did work of any kind.

The decentralization of the Federal organization goes even further. It is necessary to district the state in order that the state officer in charge may utilize his personnel to the best advantage. The same principle applies to the city health officer. He must district his city so that he can get accurate information. The primary necessity of a public health campaign of this kind is to get accurate knowledge of the prevalence of disease. Doctor Woodward spoke of reporting in the cities. I believe it should be a reportable disease, but in epidemic times it is not necessary to depend on the doctors. If you establish your headquarters, with your telephones properly advertised, calls will come in, and if you have your medical, nursing, and other forces available at headquarters, you will be kept pretty busy. In some places they do not wait for that. It is a very good policy to put in a house-to-house inspection, and make a canvass of the city. In Detroit they used as centers the two hundred schoolhouses, and the schools being closed, they used the teachers for the house-to-house visits, and were able to cover the entire city every three days. That is getting information, and it is independent of the reporting by the doctors, which is a very slender reed to lean on when doctors are so busy they are not getting time to sleep.

This organization of the Public Health Service, while largely limited to the furnishing of the sick and nursing relief, we believe was the best thing under the circumstances. In states where we had no representatives, state health officers were asked to accept appointment so that they could disburse our funds. With the reserve bill which has been passed we are now in better shape to handle just such an emergency as that through which we have just passed. In that organization we will have every state health officer in the country—not on active duty until he is needed. You will realize what this will mean when I tell you how inadequate was our personnel. The bulk of the doctors were in the army. The Volunteer Medical Service Corps gave us lists of names. We took them and sent them to the state health officer, and sometimes the man listed was 85 years old! At other times he had a wooden leg or was an addict or something else we knew nothing about, but we had to use what we could get. The fortunate thing is the great bulk of the men we got were the finest kind of men; so that these other derelicts I have mentioned are simply a small part of our problem, because they were quickly weeded out by the health officer and sent home. The other men came, some of them leaving practices of $20,000 a year—we were giving them $200 a month—and risking their lives. No tribute is too great for me to pay to the spirit of the volunteers, who came and "took a chance" in that epidemic.

THE ULTIMATE BENEFITS TO BE DERIVED FROM THE EPIDEMIC.[1]

LOUIS I. HARRIS, D. P. H., M. D.,
Department of Health, New York City.

OUR discussion of the epidemic of influenza derives a particular and immediate importance from the fact that a recrudescence of the disease in many communities is likely to occur in the near future, and we are all keenly anxious to learn how best to meet the situation should it arise.

What counts even more, however, than the development of a plan of action which will help us to deal effectively with the epidemic should it be rekindled, is the ultimate good which this frightful tragedy may be made to yield. There are those here who will give adequate attention to the purely scientific aspects of the epidemic. It is my desire to call attention to the more general features so that we may learn certain lessons from the events of the past three months. Each of us should go back to our respective communities and urge and plead with all possible emphasis that the 350,000 and more deaths caused by the now waning epidemic in this country shall not pass from memory without leading to a drastic reörganization of public health work in every town, city and state, and in the Federal government as well. Let us make it known that we were not properly prepared to meet the emergency, and let us not permit the significance of the facts revealing our handicaps and short comings to be minimized.

Let it be known that our hospital facilities were not organized to meet the situation, and that the lack of proper governmental control over these agencies caused no end of confusion and suffering. We should frankly point out that the lack of control over doctors brought sharply into focus the commercial aspects of a profession whose protective and healing mission are so sacred and so vital to the lives of people that we must now allow its members to degenerate into independent and competing agents under a competitive system of medical practice. It should be made clearly known that the Federal Health Agencies lacked adequate powers and organization to assume leadership in guiding and coördinating health activities throughout the country, and that, instead, their work resolved itself largely into feverish and oftentimes futile efforts to summon detachments of doctors in the manner of the minute men of Lexington, to battle with the disease as well as they might in stricken and undefended communities.

Shall we permit the spectacle to be forgotten of doctors and visiting nurses who crossed each others tracks, several visiting the same districts and even the same buildings, while in such houses men, women and children were dying for want of medical care, because under the present system of medical practice, the doctors were responding to calls from homes where a financial return could be expected? Shall we blame the doctor for this condition of affairs, or rather the lack of governmental control which would assure medical care to every person in the community, and give a decent recompense to doctors and nurses so as to free them from the necessity of commercial and degrading competition and enable them to devote themselves to ministering to the sick and to the protection of the well?

[1] A Discussion, at the Chicago Meeting, of Dr. McLaughlin's paper, printed upon motion adopted by the American Public Health Association at its general session December 11, 1918.

The socialization of the medical and nursing professions to place them under governmental control and direction should not be longer deferred. We should not be halted in our efforts to secure such a change by those who would seek to dam every such attempt by branding it as socialism.

The salvage of human life ought to be placed above barter and exchange. Shall we not in our reörganization provide so as to be prepared to meet a recrudescence of the epidemic or the development of a new emergency? Shall we, as a nation who have unstintingly given billions for the conduct of war, plead economy and withhold the much smaller sums needed to make possible the protection of human life on a decent scale?

We should take the lessons of the epidemic to heart and go back to our respective communities and demand the apportionment of money for every justified expenditure for the organization of preventive measures, medical care and relief. We should demand that the morale of every local and state organization be raised to the highest standard possible and be safe from political, personal or other petty disturbance, so that public health service shall offer a secure career to those who make it a life work and invite the best medical men and women from a scientific, social and humanitarian point of view, to dedicate themselves to it. We should reörganize health work so that the health officer shall no longer deem it necessary when he meets his professional brethren to say, apologetically, "I am a health officer," but it shall become an honored as well as an honorable career.

Public health protection is not the work of a day, and only by appropriations for an adequate personnel and equipment, and by guaranteeing security of position and of the morale of health organizations, will communities be better prepared to cope with disease and to extend the province of preventive medicine. These observations apply to the present situation.

The Federal Health Department, instead of dissipating its energies in attempts to provide medical and nursing attendants in cases of emergency—a task that it cannot hope to fulfill adequately—should be the leader and guide in public health work. It should serve as the clearing house whose agents, scattered about in this country and abroad to the far corners of the earth, should serve notice without delay of dangers that threaten from various sources, so that we may not be taken by surprise. It should serve as a pace-maker, not attempting the hopeless effort to be the nation-wide medical servant and sanitary police corps, but rather as a center from which authoritative judgments and guidance shall issue to every health agency, large or small, to stimulate them to greater effort. The Federal Health Department should be the coördinating body, a pace-maker and a model for all other health departments. It should be the unifying agent that brings about team work between departments and laboratories throughout the country, and the advocate and friend of every weak and struggling health organization. Finally, every nurse and doctor now in military service should be released as soon as possible for community service in case of necessity.

I am purposely avoiding the citation of experiences of purely local interest. I an hopeful that every person here present will become a missionary to carry back a message that will make for radical reörganization so that we will be better equipped to deal with routine and emergency conditions.

In any scheme of reörganization the American Public Health Association ought to play an important part. This

body should likewise be a clearing house for authoritative opinions on matters of immediate importance; and all information gathered from the papers that have been presented here and from the discussions that have taken place, should be disseminated promptly, and not filter through after the lapse of months. This Association should set standards in public health work for the guidance of all of us, and should make its influence felt in aiding the work of every local, state and other governmental health agency which may need a champion, and it should be unrelenting in opposing everything that tends to weaken health organizations. Let this night mark the beginning of a persistent and unremitting propaganda carried on by this Association to bring home to every community the need of increasing its appropriations and its personnel, to the end that human life may be better protected. In this way only may some measure of good be derived from the tragedy out of which we are apparently just emerging.

WHAT WE REALLY KNOW ABOUT THE EPIDEMIC.

MATTHIAS NICOLL, JR., M. D.
Deputy Commissioner of Health of New York State.

Read before the American Public Health Association, Chicago, Ill., December 10, 1918.

DR. NICOLL expressed regrets in behalf of Commissioner Hermann M. Biggs that he was not able to be present, and made the following statement:

It has seemed to me desirable after having listened to the discussion on epidemic influenza for the past two days, rather than to adhere to the specific subject assigned to Commissioner Biggs,* to sum up briefly what is definitely known regarding so-called influenza at the present moment, in the hope that the confusion which must exist in the minds of many health officials here present may be somewhat allayed and that even though they take home with them a sense of disappointment on account of lack of positive knowledge, they may, nevertheless be not committed to speculative theories and half truths. What then is definitely known about so-called influenza at the present time?

1. That an epidemic of an unknown disease recently invaded this country and that it still prevails in local epidemics and sporadic form.

2. That the general mortality caused by this unknown disease has never been equaled in the country as a whole.

3. That this unknown disease kills by secondary pneumonia, usually of a peculiar broncho-pneumonic type and due to a variety of organisms, including probably the so-called influenza bacillus.

4. That the uncomplicated disease causes a marked leucopænia, together with a profound toxæmia, with a tendency toward the production of hemorrhage.

5. That the age of special susceptibility to this unknown disease is that of young adult life.

6. That among pregnant women it is especially fatal.

7. That those who go to bed and remain there, even with ordinary nursing care, until at least a week after the establishment of full convalescence, will in the large majority of cases recover.

8. That strict quarantine of groups of people has frequently been successful in keeping out the disease.

* Dr. Biggs was to have spoken on "The Value of Prophylactic Measures.

All other fundamental statements and observations regarding this disease are, to the best of my knowledge, conjectural, and not a single observation other than those stated, however eminent the observer, but has been negatived by the results obtained by equally eminent observers.

In view of these facts I feel that it would be a waste of time to discuss the value of prophylactic measures. In New York State we have made the disease reportable, rather regretting the necessity for so doing, viz., administrative purposes, for naturally a disease for which at present there is no method of diagnosis other than clinical observation of greatly varying skill, cannot be reported accurately, and this fact, especially in non-epidemic years, is bound to render morbidity statistics of the infectious diseases of less value.

Schools, churches and movies have been closed with more or less regularity throughout the state, depending on the judgment of the local health officer. With what result it is not possible to determine at the present time. Unguarded sneezing, coughing and spitting have been declared misdemeanors, since it was believed that all the evidence went to show that coughing and sneezing especially were the most frequent method of dissemination, and I am going to be presumptuous enough to disagree with Colonel Vaughan that hand-to-mouth infection can be an important and frequent method of transmission of a disease, whatever its nature, which spreads with such marvelous rapidity as so-called influenza.

Vaccines, mainly those composed of a dozen strains of Pfeiffer bacilli, have been rather extensively used throughout the state, and investigations regarding their value are now being made, especially in state institutions, by members of the Influenza Commission appointed by Governor Whitman.

Finally, the use of masks has been fairly common, with what results it is not possible at the present time to state.

It seems to me that it behooves all of us in public health work to keep our heads, acknowledge our ignorance, preserve our patience, and pray that some one of the great army of research workers throughout the world, happily removed from the tumult and shouting of unsubstantiated observations, will before long be able to enlighten us as to the cause of this disease, and later devise specific methods for its control, for in no other way does it appear that the health officials of the state and nation can be rescued from their present condition of utter helplessness in the face of future epidemics.

STUDIES ON THE ETIOLOGY OF THE PANDEMIC OF 1918.

W. H. Park, M. D., and A. W. Williams, M. D.

In association with H. M. Hatfield, M. D., E. Valentine, A. G. Mann and H. D. Hussey of the Bureau of Laboratories, Department of Health, New York City.

Read before the American Public Health Association, Chicago, December 9–12, 1918.

UNTIL just after the great pandemic of 1889–92 no single species of microörganisms had been found with enough frequency in cases of influenza to be considered as the specific cause of the disease. Then Pfeiffer found a minute organism in a small series of cases occurring about one year after the peak of the pandemic.

Pfeiffer's reasons for claiming that his bacillus, which has since been named B. influenzæ, is the cause of epidemic influenza are as follows: (1) He found it in large numbers in every case he examined, sometimes in pure cultures. (2) He found no other organisms in every case. (3) He found it at the site of the lesion, that is, in the bronchial secretions in the living, and, as well, in the deeper portions of the lungs after death. (4) He said it disappeared from the secretions after the patients became entirely well. (5) He did not find it in other conditions. (6) He said he produced the disease irregularly in monkeys and atypically in rabbits and he recovered his organism from the site of the lesion. He thus apparently fulfilled the postulates of Koch which were supposed at that time to embody the proof of the specific pathogenicity of an organism.

We know now, however, that these "postulates" are not necessarily the only ones to prove that a given organism is specifically pathogenic, neither are all of them always essential for proof. We know that the demonstration of specific antibodies in the host constitutes the strongest proof of specificity and the test must be made in those cases where similar organisms are found in other conditions. And we know that the invading organism, contrary to Pfeiffer's first statement that true influenza bacilli are only found in true clinical influenza, influenza-like bacilli that cannot yet be differentiated from the B. influenza by any known tests are found in many other cases than those of epidemic grip. And since the animal experiments are not yet clear and no group antibodies have yet been demonstrated,* and since other observers have not found influenza bacilli in all cases diagnosed as epidemic grip, doubts have accumulated in regard to their specific action.

Furthermore, after the announcement was made a short time ago that some "common colds" were probably due to a filtrable virus, it was suggested that influenza also might be due to a filtrable virus and that the influenza bacillus and the other organisms described as the cause might be only secondary invaders.

With the coming of the 1918 pandemic we knew that if the influenza bacillus was the initiating cause, we must be dealing with a single type of exalted virulence or toxicity or both, and that unless we could recover influenza bacilli from the large majority of early cases and show a definite antibody relationship between these strains, we could not add evidence as to its being the exciting factor.

The first published reports of the bacteriological findings in the present epidemic have not helped to clear up the doubts as to the part played by the influenza bacillus in these cases. A number of investigators have not found any of these bacilli.

It is surprising, however, how little de-

*Wollstein, *Jour. Exp. Med.*, 1915, XXII, 445.

tail these reports contain concerning the methods of isolation of the influenza bacillus. Those of us who have through experience learned of the ease with which the influenza bacillus may be missed in an examination, know how little dependence can be placed upon reports of negative findings unless those reports describe fully the media used, the source and dilutions of suspected material, the time allowed for the cultures to grow and the use of specific tests and stains, and also show that all of these factors have been handled in a satisfactory way. We have not yet seen one report of negative findings as far as the influenza bacillus is concerned that gives all of these particulars. Neither have most of the investigators described the organisms they did find with enough minuteness to allow of their identification by others. Bearing in mind, however, the characteristics of each group of organisms to which the organism belonged that had been described as the prevalant organism in a series of cases in different parts of the world, we chose in our own work our culture media and methods of obtaining material, as far as we could judge from the meager reports, so we might be able to detect any or all of the microorganisms described or any others of significance, with the exception of a filtrable virus.

We came to the conclusion that a study of the existence of a filtrable virus to be worth anything involved such controlled handling of human tests, that it could be done best in camps with volunteers,— therefore we decided to leave it to the camp workers. So far the few experiments made in this country for detecting a filtrable virus have been negative,* while in France two insufficiently controlled experiments have been reported.†

We began our study of this epidemic about the middle of September. The contagious disease hospitals of New York City received groups of sailors from the Navy Yard in this vicinity so we had the opportunity of studying a number coming down with the disease. At about the same time we also obtained material directly from the receiving ship in order to get some cases in the earliest hours of infection. We made a study, as well, of some early and later cases from a camp in this vicinity.

We at first made a study of cultures from different parts of the naso pharynx (nose, tonsils, entrance of posterior nares into pharynx)— from the deeper air passages and from the sputum (secretions cannot be obtained early in the disease). We soon found that we obtained cultures with less contaminations by the ordinary mouth organisms when we took them from the pharynx at the entrance of the posterior nares by means of a turned swab protected by a West Tube, in the same way that cultures are obtained for the determination of the presence of meningococcus.

We, therefore, took all of our later cultures in early cases only from this area, and called them naso-pharyngeal cultures. Our second best results were from the tonsils. Cultures from the sputum in these early cases were very unsatisfactory since many mouth organisms were present and the influenza bacilli were apt to be missed.

We chose media for growing these cultures which we had found best for the development of influenza bacilli, of hemolytic streptococci, of pneumococci and the "streptococcus viridans" group and of meningococcus-like organisms, and arranged our record cards so we could note the presence and number of these organisms and of any other microörganism that might be either in great abundance or have peculiar characteristics. We also examined cultures under partial anæro-

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*J. J. Keegan, *Jour. A. M. A.*, 1918, LXII, 1050.

†Nicolle and Le Bailly, Compt. rend. acad. cl. sc., 1918, CLXVII, 607; Dugarrie de la Rivière, *ibid.* p. 606.

bosis in our hunt for unusual microörganisms, so far with negative results. Our method of making this study may be described as follows:

At Bedside.

1. Cultures are taken from naso-pharynx with swab protected by West Tube.
2. A small area is inoculated on one side of blood-pour vitamin-agar plate.
3. Then on blood-drop-agar plate (a drop of blood placed on one side of veal-agar plate), a similar small area is inoculated with the same swab.
4. Then the swab is rubbed around in a tube containing blood broth (4 per cent whole blood) and afterwards removed, and discarded.

Citrated horse blood was used for all of this work.

At Laboratory.

The two plates and the blood broth tube are carried to laboratory, where, (1) with a sterile platinum loop, another blood drop plate, using vitamin-agar, is inoculated from the inoculated area of the first, streaking out over the entire plate many streaks from the inoculated area; (2) the other two plates are then streaked in same manner; (3) two blood-pour-agar plates are made inoculating while the blood-agar is still melted (at 45° C.) with 1 loop and 0.2 cc. respectively from the blood-broth tube inoculated from swab.

In 24 or 48 hours, the influenza colonies appear (1) on blood-pour-agar plates to the naked eye as minute dew-drop colonies, and (2) on blood-drop agar plates under the microscope (mag. 100 diam.), as small whitish areas embedded in the red-blood cells. The pneumococcus and streptococcus show a greenish rim; the blood cells are not so used up. The influenza colonies are most typical on this plate. They often show a characteristic "heaping" in the center. When surrounded by blood cells, the margins of the colonies often appear irregularly scolloped, but on the edges of the blood mass the free margins of the colonies are usually entire, with an occasional indentation. It is difficult, however, to focus on a definite marginal line, the margin seems to vanish suddenly on focusing. The third dilution plate—the blood-drop-vitamin-agar plate—often shows very large colonies of influenza bacilli. Transplants are made on glycerin-veal-blood-agar (Chocolate medium). The formula for which is the following:

Chocolate Medium.

Veal agar—neutral to phenol phthalein.
Glycerin—5 per cent.
Whole blood (horse or other)—5 per cent.
Add blood to glycerin-veal-agar just after latter has been removed from sterilizer (at about 90° C.).

The formula for vitamin-agar is as follows:

VITAMIN AGAR.

Beef heart—fresh, trimmed free from fat and tendon, and finely chopped.
Peptone—Difco—1.5 per cent.
Sodium chloride—0.5 per cent.
Eggs and tap water.

PROCEDURE A.

Beef heart—500 gms.
Tap water—500 cc.
Egg well beaten—1
Peptone—15 gms.
Sodium Chloride—5 gms.
Heat in water-bath, double boiler or over open fire with constant stirring until color changes to brown (at about 68° to 70 ° C.). *Do not use cheesecloth.*

PROCEDURE B.

Agar—15 gms.
Tap water—500 cc.
Heat to dissolve agar, either in autoclave, or over open flame. If latter, make water lost by evaporation. Do this by weight. When agar is completely dissolved cool to 70° C. and add mixture. Set reaction (or make slightly alkaline to litmus paper) 0.4 acid to phenolphthalein (room temperature titration) by adding normal sodium hydroxid. Place mixture in autoclave and heat for one-half hour at 15 pounds pressure.
Remove kettle carefully without disturbing contents and set aside to solidify. The meat particles, etc., settle gradually to the bottom. After the agar hardens completely turn it out in mould form and trim off the layer containing the sediment. The remainder of the agar is fairly clear.

Melt and tube or bottle.
Sterilize for one-half hour at 15 pounds pressure.
Colonies of B. influenzæ appear usually in twenty-four hours. Negative plates should be returned to the incubator and examined again after forty-eight and seventy-two hours before being discarded as negative.

We examined about two hundred cases diagnosed clinically as influenza in from the first to the sixth day of the disease. In all of these cases we found that the earlier the case was cultured the more constantly did we find large numbers of influenza bacilli in the naso-pharynx. No other picture was so constant, though we did find a high percentage of meningococcus-like organisms, and of streptococci belonging to the viridans group.

We have had two groups of cases since which strikingly bore out this picture.

The first group was in a children's home where some nurses, who had been sent out to help the sufferers from a munition plant blown up, among whom many cases of influenza developed, came down with the disease just after they returned to the home, and an epidemic swept over the institution in quite virulent form. We were able to culture many of the cases in the first day of the disease. These all showed abundant, almost pure cultures of influenza bacilli, and 98 per cent of the others (forty-eight cultures in all) showed the bacilli in large numbers. Among nine cultures taken in the Admitting Ward which was not kept strictly quarantined, four demonstrated influenza bacilli. One from a case having a nasal discharge, contained many, and the others very few. Any deductions drawn from the high incidence of the influenza bacilli in the typical cases of this group are vitiated by the fact that there had been a number of cases of pertussis in the institution during the summer.

The other groups consisted of eighty Marines who came from the South in a body, and who just as they arrived in New York all came down with the typical "influenza." They were sent to the hospital immediately. We cultured thirty of them and all showed large numbers of influenza bacilli, almost pure cultures in many of the cases.

In this group there had been no pertussis and no measles, in both of which diseases influenza bacilli are usually found.

Our most striking control so far is from a girls' home containing 500 inmates where no influenza cases had occurred. Thirty-four cultures were taken from different groups of girls, and in only two, one of which had a "slight cold" and had been kept isolated, were influenza bacilli found.

Since this examination was made we have examined a preventorium where the inmates had not been kept strictly isolated from the village in which there had been a number of cases of influenza and where there had been one typical case of influenza and the usual number of short fevers, and where we found that 33 per cent of the cultures contained influenza bacilli.

We were able to make a bacteriologic examination of thirty autopsies, the results from which are given briefly below.

In twenty-four cases we found influenza bacilli in the lungs, in five of which they were in pure culture. In twenty-six out of twenty-seven tracheas in these cases we found influenza bacilli in large numbers. We found pneumococci (mostly type IV) in fifteen lungs; streptococcus hemolyticus in nine, gram negative coccus in one, staphylococcus in two and small gram negative bacillus in one. We thus see that the influenza bacillus was found more frequently than any other one organism. But our serologic studies so far seem to show that it was a frequent secondary invader rather than the initiating cause.

All our results in regard to the incidence of the influenza bacillus may be tabulated as follows:

B. INFLUENZA.

Group.	*Present.*	*Absent.*	*Per cent.*
Hospital Cases	160	40	80
Marines	30	0	100
Home for Children	47	1	98

CONTROLS.

	Present.	*Absent.*	*Per cent.*
Nurses—Contracts	4	6	40
Nurses—Non-contracts	1	7	9
Measles	4	2	67
Admission Ward	4	5	41
Home for Girls	2	32	6
Preventorium	14	25	33

AUTOPSIES.

Material.	*Present.*	*Absent.*	*Per cent.*
Lungs	24	6	80
Pure Culture	5	25	17
Tracheas	26	1	96
Heart's Blood	3	27	10

Just as soon as we began to find the influenza bacilli in such large numbers in the early cases and in pure cultures in the lungs, and in very large numbers in and between the cells in direct smears from most of the tracheas examined at autopsy, we came to the conclusion that whether or not this bacillus is the initiating cause of the present epidemic, it gave evidence that it had a marked pathogenic action. This seemed to be sufficient reason for us to make as thorough a trial as possible of the effect of an influenza bacillus vaccine on the prevention if not of the pandemic at least of a number of the cases of infection with this bacillus.

The problem of producing immense quantities of vaccine; of determining the best dosage; the time for immunity, if any, to be established; of getting the proper controls in communities not yet infected; and above all of keeping good records and gathering and analyzing them is one of the most important and staggering of problems.

We began the use of our influenza vaccine after the pandemic had already started and some groups were not vaccinated until after the peak of the pandemic had passed, so unless we have been able to get sufficient control cases, that is presumably susceptible unvaccinated cases exposed to the same degree and observed at the same time as the vaccinated cases, we could arrive at no conclusion with regard to the efficiency of the vaccine. The reports from the use of our vaccine are being analyzed now and it is already apparent that the majority of them are lacking in many essentials.

The intelligently controlled use of the vaccine might have given us strong evidence in regard to the etiologic relationship of the influenza bacillus to the present pandemic; as it is, unless the finished reports prove to be better than they now promise, we must wait for such evidence as may be gathered from a serologic study of the various strains of the influenza bacillus isolated by us from the typical cases and from control cases.

So far in our serologic work we have studied the agglutination reactions of nine autopsy strains. We began with autopsy strains because we thought they might more nearly represent the pandemic strain if such a strain existed. We found contrary to these expectations, that each strain produced abundant agglutinations only for itself, the absorption test showing absolutely no cross agglutination. It is apparent then that these autopsy strains are the individual's own influenza bacilli. This raises the question of the possibility of missing an initiating strain in the majority of autopsy cases. A study of our two hundred strains from beginning cases, especially from groups of cases where there was every opportunity for mixed infections, may help throw some light on this question.

THE INFLUENZA EPIDEMIC AS SHOWN IN THE WEEKLY HEALTH INDEX.

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Read before the Section on Vital Statistics, American Public Health Association, December 9, 1918, Chicago, Ill.

THE spread of the influenza epidemic across the United States can be readily followed in the *Weekly Health Index*. Only mortality figures are given, but the epidemic is known to have caused so many fatalities within a few days of the appearance of the disease that it is safe to say that the morbidity wave preceded the mortality wave by only a few days at the most.

For the week ending September 14, Boston reported 19 deaths from influenza and 27 deaths from pneumonia (all forms), and within the next four weeks the epi-

INFLUENZA EPIDEMIC, 1918.

City	Deaths per 100,000 population from influenza and pneumonia (all forms) during week ending:											
	September			October				November				
	14	21	28	5	12	19	26	2	9	16	23	30
Total	1.4	3.1	8.0	21.6	51.2	90.5	92.7	66.7	38.0	22.1	15.1	
Albany	**1.8**	**0**	**1.8**	1.8	40.0	97.7	165.2	137.7	46.2	*17.8	3.6	12.4
Atlanta	**3.5**	——	**2.0**	3.5	14.9	40.2	*50.1	19.3	15.4	13.4	11.9	
Baltimore	**1.2**	**0.8**	3.2	19.5	93.9	226.3	178.9	66.2	24.5	8.5	6.0	6.7
Birmingham	**1.0**	**1.0**	2.5	8.1	30.9	55.6	67.3	*43.0	23.3	23.3	22.3	36.4
Boston	5.9	33.7	98.7	154.6	130.8	75.0	28.8	17.4	* 9.7	6.0	6.9	6.9
Buffalo	**1.7**	**2.5**	3.4	10.1	38.0	112.2	153.2	96.1	35.5	*16.9	7.2	7.6
Cambridge	**6.3**	**3.6**	94.2	125.6	103.2	56.5	18.8	*17.1	4.5	8.1	8.1	6.3
Chicago	**0.6**	**0.9**	3.5	16.1	40.3	81.1	91.2	56.6	28.4	15.0	9.7	8.4
Cincinnati	**1.2**	**1.0**	**1.4**	4.3	16.0	45.9	67.2	59.3	39.0	23.2	25.1	22.5
Cleveland	**0.6**	**1.0**	**1.2**	2.2	4.9	19.5	55.9	84.2	64.7	43.3	29.6	24.3
Columbus	**0.4**	**1.8**	**2.7**	4.4	12.4	32.4	51.9	41.7	22.2	16.0	19.1	28.4
Dayton	**1.5**	**0.8**	**1.5**	**3.8**	23.7	102.6	104.9	88.0	*51.3	16.1	3.8	9.9
Fall River	**0**	7.0	15.6	75.5	156.6	149.5	75.5	31.2	18.7	10.9	7.8	3.9
Grand Rapids	**1.5**	——	**0.7**	**2.2**	5.2	8.1	16.2	13.3	9.6	21.4	16.2	
Indianapolis	**1.0**	**2.1**	3.5	8.3	15.9	44.2	39.7	29.0	20.0	16.6	21.4	
Jersey City	**0.6**	**1.9**	6.6	20.7	72.5		133.3					
Kansas City, Mo.	**1.6**	——	**3.2**	11.8	30.6	53.5	61.5	62.8	44.0	25.5	20.4	30.9
Los Angeles	**1.6**	**0.9**	**0.4**	2.5	12.1	23.0	51.5	67.2	54.4	52.8	34.5	29.4
Louisville	**1.2**	**3.7**	**1.6**	5.8	37.9	74.2	74.6	28.4	*23.9	16.1	14.4	21.0
Lowell	**0.9**	7.3	29.3	85.3	129.3	106.3	77.0	*27.5	7.3	7.3	10.0	1.8
Memphis	——	——	——		51.7	117.6	107.3	45.9	*	11.0	11.6	3.9
Milwaukee	**0.9**	**1.1**	2.9	3.3	15.2	24.9	38.6	27.6	20.9	15.4	10.8	19.4
Minneapolis	**0.5**	——	2.9	3.4	12.5	25.8	39.1	31.3	24.8	24.3	10.4	10.7
Nashville	**1.7**	——	**2.5**	4.2	108.2	161.9	106.5	45.3	44.5	12.6	13.4	19.3
Newark	——	**1.4**	1.9	12.4	44.1	92.4	100.5	87.7	41.3	25.9	16.3	13.1
New Haven	**0**	**1.3**	9.7	23.2	49.7	98.1	118.2	108.5	52.9	31.0	12.9	15.5
New Orleans	**1.3**	——	**0.8**	7.6	37.7	163.2	178.4	87.1	41.3	19.9	9.7	11.2
New York	**1.4**	2.0	3.7	14.1	40.7	81.0	100.1	84.4	43.7	20.2	12.6	8.1
Oakland	**1.9**	**0**	**0.9**	**1.4**	8.4	19.6	64.4	110.6	73.3	32.7	14.5	4.7
Omaha	**0.6**	——	**1.1**	**3.9**	37.7	88.8	81.5	52.1		26.6	21.1	
Philadelphia	**1.1**	**1.8**	4.3	40.1	149.6	261.0	171.5	68.3	21.3	* 9.3	5.8	5.3
Pittsburgh	**2.0**	**2.9**	5.7	11.6	19.2	65.6	97.1	106.2	134.5	89.7	64.9	23.4
Providence	**1.5**	3.8	8.3	37.6	70.6	96.7	82.7	51.2	24.7	*13.7	12.5	8.7
Richmond	**2.5**	**1.9**	**2.5**	25.5	81.5	122.6	79.6	44.2	17.4	14.3	8.1	14.9
Rochester	**0.4**	**0.4**	**2.6**	**2.3**	13.6	38.5	80.4	78.9	39.3	19.6	15.1	14.0
St. Louis	**1.5**	**1.7**	**2.6**	**3.2**	11.0	23.8	29.9	33.0	29.4	29.2	24.4	30.1
St. Paul	**1.2**	——	**1.2**	**0.4**	23.7	29.1	22.1	39.6	42.3	52.4	34.1	24.1
San Francisco	**1.3**	**2.9**	**3.1**	**3.1**	4.0	27.2	115.4	154.2	86.5	41.4	18.8	11.7
Syracuse	**0**	——	23.5	86.1	135.7	156.7	86.7	42.1	17.3	*14.2	4.3	
Toledo	**0.8**	**0**	**1.9**	**1.1**	3.4	18.7	52.6	43.9	32.8	17.5	16.0	10.7
Washington, D. C.	**2.5**	**2.2**	8.5	43.1	121.5	154.8	96.8	45.1	*13.7	10.5	9.2	10.5
Worcester	**4.0**	9.8	58.2	114.6	132.5	92.1	51.3	34.0	*	7.5	16.7	6.9

NOTE.—Blank spaces indicate that no report has been received. Black faced figures and spaces underscored in black, ——, preceded the epidemic. * indicates the end of the big mortality wave.

demic had certainly reached 43 of the 46 cities shown in the *Index*, and the other three were already reporting abnormal numbers of deaths from pneumonia. Thus, in a period of five weeks, the mortality wave swept from the Atlantic to the Pacific. The spread of the epidemic westward is shown on the outline map (page 61), where Boston is marked 1, the cities affected the second week 2 and so on. The only city outside of New England in the second week was New York; in the third week the epidemic had reached Minneapolis in the North and Birmingham in the South, and in the fourth week Los Angeles, while cities in the states of Oregon and Washington escaped till the fifth week.

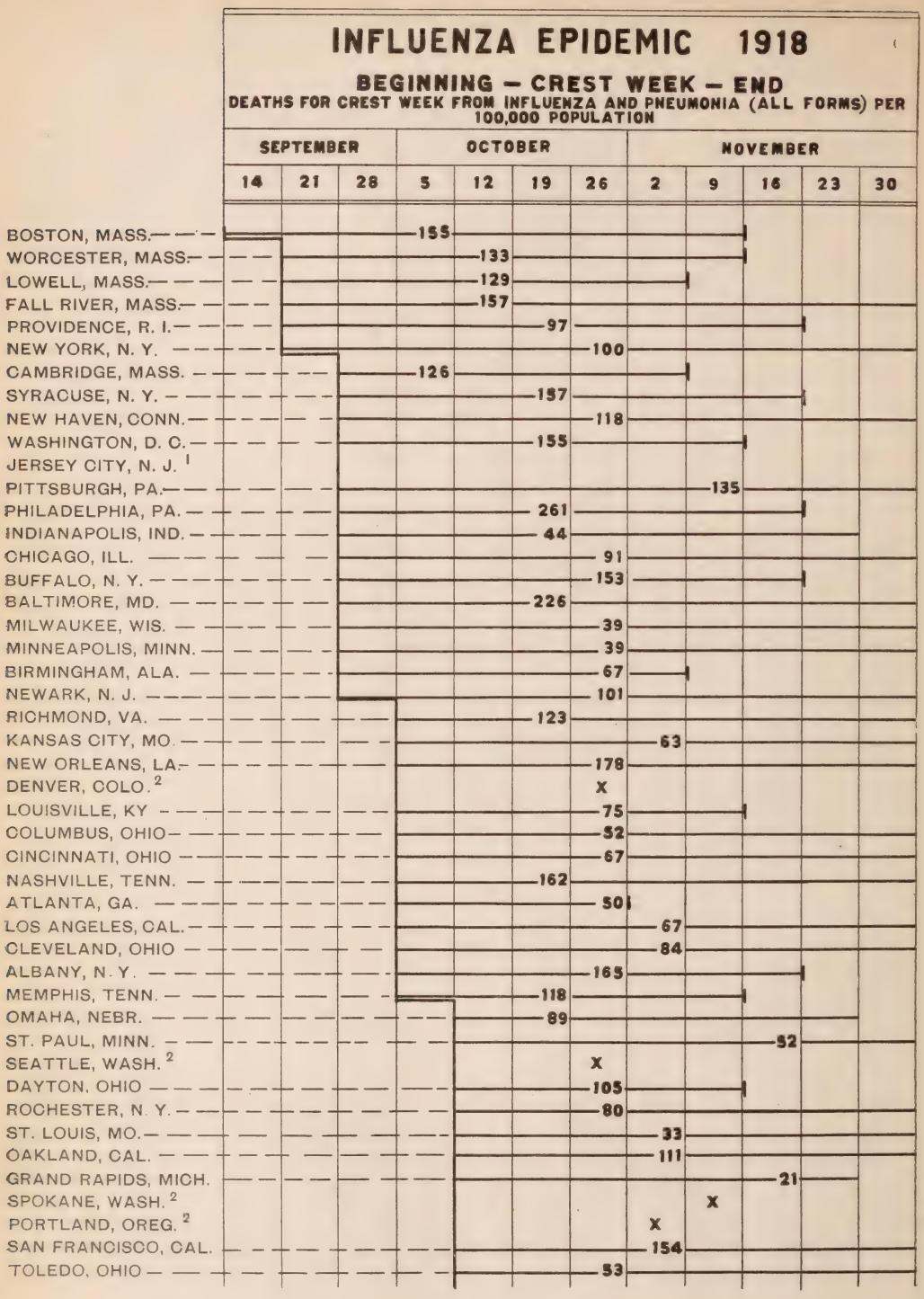
In the chart (page 52), the irregular line on the left marks the beginning of the epidemic in each locality. The cities are arranged as nearly as possible in the order they were affected as indicated by the mortality data, the cities in each group being arranged according to the magnitude of the mortality rates from influenza and pneumonia (all forms) for the first week of the epidemic. The figures in the center of the chart show for each city the crest week and the number of deaths reported that week from influenza and pneumonia (all forms) per 100,000 population.

Similar figures for each week for each city are given in the table (page 50).

For 20 cities the crest of the epidemic came the fourth week; for 12 cities the fifth week; for 7 cities the third week, while the crest of the other 7 cities came in the second, sixth, and seventh weeks. The height of the crests ranged all the way from 21 per 100,000 population in Grand Rapids to 261 per 100,000 in Philadelphia.

The end of the big mortality wave in 15 cities is marked by asterisks placed in the right half of the table. For each city the week beyond this mark is the first week to show a mortality rate from all causes below any weekly rate in the corresponding month of 1917. Since reaching the normal level the rates in a few places have again started upward, but not so rapidly as to suggest the probability of another big mortality wave.

To measure roughly the total mortality of the epidemic to date in each place, the normal number of deaths to be expected from all causes has been estimated for the 12 weeks ending November 30 from the mortality figures of September, October, and November, 1917, and this number subtracted from the actual number of deaths reported for the 12 weeks ending November 30, 1918. The number of normal deaths to be expected during the 12 weeks has been estimated by assuming as normal a 1917 death-rate based upon 12/13 of the deaths which occurred in September, October, and November, 1917, and a 1917 population estimated arithmetically from the last state or Federal census and the 1918 estimate. Broadly speaking the number of excess deaths thus found corresponds closely to the number of deaths assigned to influenza and pneumonia (all forms) so that the total number of deaths from these two causes may also be considered as a fairly accurate measure of the mortality due to the epidemic. The total number of deaths from these two causes in the twelve-week period, with no allowance made for a few missing reports, is 94,267. Moreover it must be remembered that this large mortality is for only about one-fifth of the population of the United States. The number of deaths from influenza and pneumonia (all forms) in the twelve-week period, per 1,000 population for each city, is given in the *Index* for November 30, Philadelphia showing the highest mortality (7.4 per 1,000), and Grand Rapids the lowest mortality (0.9

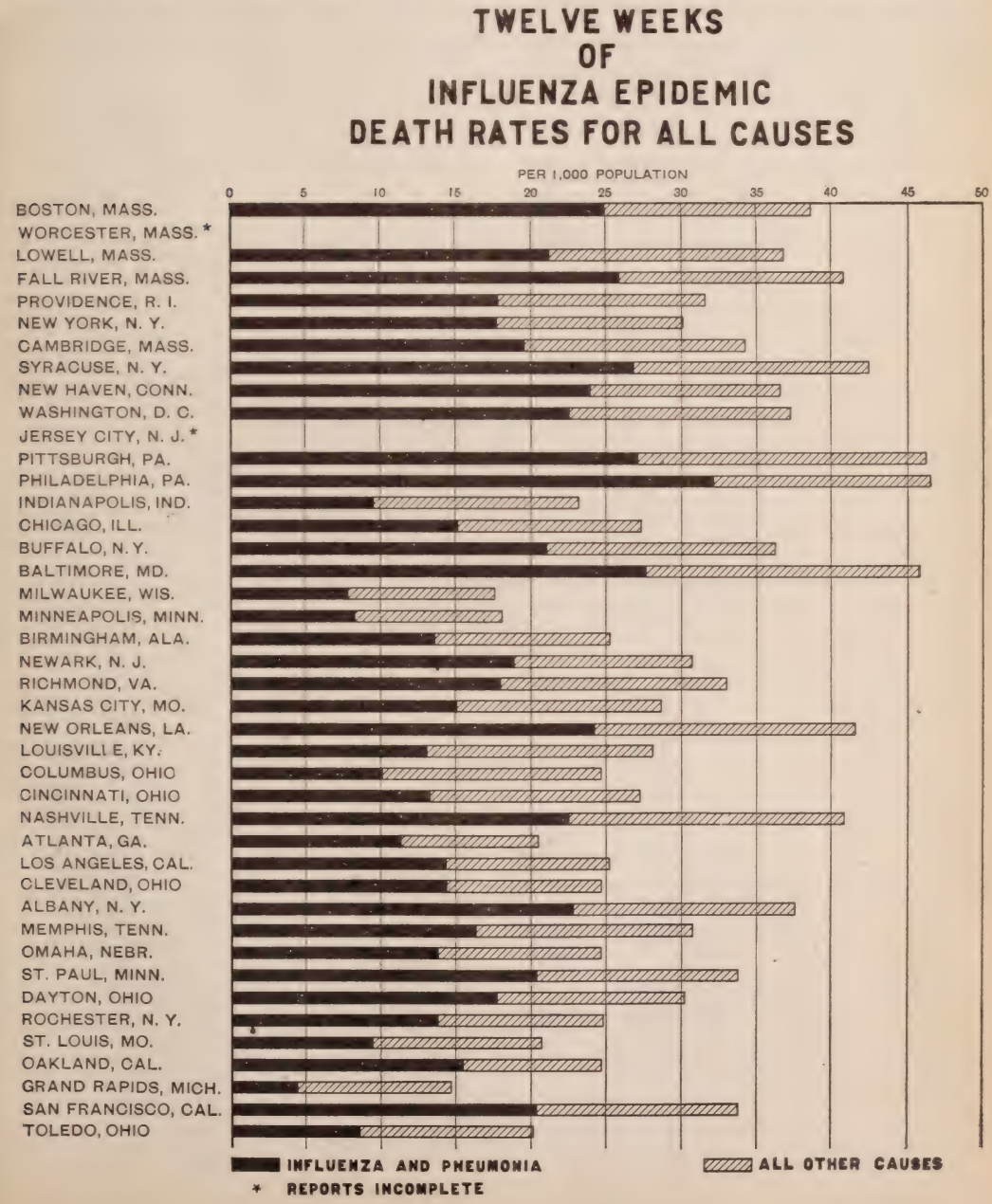


1 REPORTS INCOMPLETE

2 CREST WEEK INDICATED BY X

per 1,000).* Other cities with relatively high mortalities were Baltimore, Pittsburgh, Boston, Syracuse, and New Orleans, while relatively low mortalities appear for Minneapolis, Milwaukee, Indianapolis, and Toledo.

Possibly a more accurate measure of the toll of the epidemic would be obtained by subtracting from the totals the number of deaths which were assigned to these causes in September, October, and November, 1917. If health officers or others desire to measure the epidemic in this way, these 1917 figures will be found in the issue of November 16, 1918. Such a refinement of the figures will lead to a



reduction of the totals of about 8 per cent, but is of somewhat doubtful value as only a 4 per cent reduction is needed to make these totals agree with the excess deaths.

Although these methods of measuring the epidemic may be sufficiently accurate, some mention should be made of the possible errors involved.

In determining the number of excess deaths the assumption has been made that the mortality of 1917 in each city for September, October, and November, was a normal mortality. In so far as this assumption is incorrect the calculated number of excess deaths will also be incorrect. Similarly the estimates of population if very much too large will make the number of excess deaths too small and *vice versa*.

Then again, any epidemic of another kind or any catastrophe like the recent subway accident in New York City will swell the number of excess deaths and so make this number a less accurate measure of the epidemic.

So also in the other method of measuring there are several possible errors. The number of deaths from influenza and

INFLUENZA

City	Estimated Population July 1, 1918	Annual Death Rate per									
		September 14		September 21		September 28		October 5		October 12	
		All Causes	Influenza and Pneumonia (All forms)	All Causes	Influenza and Pneumonia (All forms)	All Causes	Influenza and pneumonia (All Forms)	All Causes	Influenza and Pneumonia (All Forms)	All Causes	Influenza and Pneumonia (All Forms)
Albany	112,565	9.3	0.9	15.3		13.4	0.9	*19.0	0.9	35.7	20.8
Atlanta	201,732	12.4	1.8	15.8		10.3	1.0	*20.9	1.8	21.2	7.8
Baltimore	599,653	16.5	0.6	14.2	0.4	*16.9	1.7	27.9	10.2	69.0	49.0
Birmingham	197,670	14.8	0.5	11.1	0.5	*10.8	1.3	22.7	4.2	21.4	16.1
Boston	785,245	*14.5	3.1	32.6	17.6	65.9	51.5	98.0	80.6	85.3	68.2
Buffalo	473,229	14.9	0.9	14.9	1.3	*16.0	1.8	22.4	5.3	37.8	19.8
Cambridge	111,432	19.7	3.3	19.2	1.9	*65.5	49.1	85.2	65.5	67.9	53.8
Chicago	2,596,681	10.8	0.3	11.5	0.5	*12.5	1.8	20.4	8.4	33.1	21.0
Cincinnati	418,022	14.7	0.6	13.5	0.5	13.0	0.7	*17.5	2.2	24.2	8.4
Cleveland	810,306	10.2	0.3	9.5	0.5	10.0	0.6	*10.1	1.2	12.1	2.6
Columbus	225,296	16.2	0.2	12.3	0.9	14.3	1.4	*16.0	2.3	23.1	6.5
Dayton	130,655	12.8	0.8	14.0	0.4	13.2	0.8	16.0	2.0	*23.9	12.4
Denver											
Fall River	128,392	15.4		*20.3	3.7	24.4	8.1	60.1	39.4	101.5	81.6
Grand Rapids	135,450	11.2	0.8	10.0		14.6	0.4	9.2	1.2	*11.5	2.7
Indianapolis	289,577	11.9	0.5	15.5	1.1	*9.9	1.8	19.3	4.3	22.5	8.3
Jersey City	318,770	12.9	0.3	10.8	1.0	*16.0	3.4	22.1	10.8	51.9	37.8
Kansas City, Mo.	313,785	11.0	0.8			12.6	1.7	*18.3	6.1	27.6	16.0
Los Angeles	568,495	12.1	0.8	10.2	0.5	10.2	0.2	*10.7	1.3	14.0	6.3
Louisville	242,707	13.5	0.6	15.0	1.9	15.5	0.9	*17.6	3.0	36.5	19.8
Lowell	109,081	14.8	0.5	*17.2	3.8	28.7	15.3	65.5	44.5	67.4	67.4
Memphis	154,759	19.9		17.5		19.5		*24.6		42.5	27.0
Milwaukee	453,481	9.4	0.5	10.3	0.6	*12.3	1.5	13.8	1.7	19.3	7.9
Minneapolis	383,442	7.6	0.3	12.0		*12.0	1.5	11.4	1.8	17.0	6.5
Nashville	119,215	16.6	0.9	19.7		17.9	1.3	*23.2	2.2	77.9	56.4
Newark	428,484	11.1		14.0	0.7	*11.2	1.0	17.9	6.4	36.2	23.0
New Haven	154,865	10.4		17.5	0.7	*15.5	5.1	20.9	12.1	41.1	25.9
New Orleans	382,273	17.3	0.7	15.4		16.4	0.4	*21.0	4.0	36.1	19.6
New York	5,215,879	11.1	0.7	*11.4	1.1	12.1	1.9	17.9	7.3	33.1	21.2
Oakland	214,206	10.5	1.0	10.2		10.5	0.5	7.5	0.7	*11.4	4.4
Omaha	180,264	10.4	0.3	10.7		7.8	0.6	11.3	2.0	*26.9	19.7
Philadelphia	1,761,371	11.1	0.6	12.3	0.9	*17.4	2.2	35.3	20.9	95.7	78.0
Pittsburgh	593,303	14.0	1.1	15.2	1.5	*17.7	3.0	20.3	6.1	29.9	10.0
Portland, Ore.											
Providence	263,613	11.3	0.8	*16.6	2.0	16.0	4.4	31.5	19.6	51.6	36.8
Richmond	160,719	17.8	1.3	14.9	1.0	14.6	1.3	*18.8	13.3	57.7	42.5
Rochester	264,856	8.7	0.2	15.0	0.2	13.4	1.4	15.4	1.2	*21.7	7.1
St. Louis	779,951	11.4	0.8	10.8	0.9	11.7	1.3	12.4	1.7	*15.7	5.7
St. Paul	257,699	10.9	0.6	7.9		8.9	0.6	4.9	0.2	*18.6	12.3
San Francisco	478,530	12.6	0.7	14.1	1.5	12.6	1.6	13.2	1.6	*14.4	2.1
Seattle											
Spokane											
Syracuse	161,404	12.0				*24.6	12.3	60.4	44.9	88.5	70.7
Toledo	262,234	9.7	0.4	10.3		13.9	1.0	12.7	0.6	*12.7	1.8
Washington, D.C.	401,681	14.0	1.3	14.4	1.2	*18.4	4.4	39.7	22.5	79.7	63.3
Worcester	173,650	12.3	2.1	*14.7	5.1		30.3		59.8		69.1

NOTE.—Blank spaces indicate that no data is available. * Indicates the beginning of the epidemic. † Indicates the end of the big

pneumonia (all forms) will be too large a measure if the fashion of diagnosis by physicians and the fashion of assigning causes of death by registrars leads to the compiling of deaths under these causes which should be compiled elsewhere. And *vice versa*, it is conceivable that owing to a desire to maintain the reputation of a city as a healthful spot or for other reasons, the number of deaths assigned to these two causes may be too small.

A few examples of probable errors in the number of deaths assigned to influenza and pneumonia will serve to emphasize the need of caution in attempting to measure the mortality due to the epidemic. One city for the week of October 26 had a death-rate of 91.7, and a death-rate from influenza and pneumonia (all forms) of 50.6. The large difference between these rates (41.1) certainly suggests that too few deaths were assigned to influenza and pneumonia. A similar difference of 44.1 is found for the same city for the week ending November 2, and yet the following week, with corresponding rates of 71.7 and 70.1, the difference was only 1.6.

EPIDEMIC, 1918.

100,000 Population for Week Ending:

October 19		October 26		November 2		November 9		November 16		November 23		November 30		Total for 12 Weeks	
All Causes	Influenza and Pneumonia (All Forms)	All Causes	Influenza and Pneumonia (All Forms)	All Causes	Influenza and Pneumonia (All Forms)	All Causes	Influenza and Pneumonia (All Forms)	All Causes	Influenza and Pneumonia (All Forms)	All Causes	Influenza and Pneumonia (All Forms)	All Causes	Influenza and Pneumonia (All Forms)	All Causes	Influenza and Pneumonia (All Forms)
72.7	51.0	106.1	86.2	85.2	71.8	33.4	24.1	24.6	9.3	†13.9	1.9	22.7	6.5	37.6	22.9
32.1	20.9	34.1	†26.1	20.4	10.1	21.5	8.0	17.8	7.0	19.6	6.2	19.4		20.5	11.3
147.0	118.0	118.1	93.3	53.3	34.5	27.3	12.8	20.3	4.4	20.7	3.1	18.4	3.5	45.8	27.6
46.7	29.0	45.6	35.1	32.4	22.4	†21.1	12.1	22.7	12.1	25.9	11.6	28.2	19.0	25.3	13.7
50.7	39.1	29.0	15.0	21.2	9.1	17.5	5.0	†15.3	3.1	17.1	3.6	16.0	3.6	38.6	25.0
76.4	58.5	100.3	79.9	67.5	50.1	31.5	18.5	21.9	8.8	†15.6	3.7	17.3	4.0	36.4	21.1
46.8	29.5	24.8	9.8	19.7	8.9	†12.6	2.3	13.1	4.2	18.7	4.2	18.7	3.3	34.3	19.7
57.6	42.3	63.0	47.5	44.0	29.5	26.3	14.8	18.5	7.8	16.0	5.0	15.7	4.4	27.4	15.3
39.4	23.9	49.3	35.1	47.6	30.9	32.7	20.3	25.3	12.1	25.7	13.1	24.6	11.7	27.3	13.3
21.3	10.2	40.7	29.2	56.0	43.9	46.2	33.7	33.3	22.6	25.6	15.4	22.1	12.7	24.8	14.4
33.8	16.9	46.1	27.1	32.2	21.8	20.4	11.6	20.4	8.3	26.2	10.0	29.6	14.8	24.2	10.1
70.6	53.5	64.7	54.7	59.1	45.9	41.1	26.7	†19.2	8.4	15.2	2.0	12.8	5.2	30.2	17.7
97.9	78.0	62.5	39.4	28.0	16.2	19.1	9.7	28.0	5.7	19.1	4.1	14.2		40.9	26.0
12.7	4.2	17.3	8.5	18.9	6.9	14.2	5.0	20.4	11.2	17.7	8.5	19.2		14.8	4.5
38.2	23.0	35.5	20.7	0.4	15.1	20.5	10.4	18.5	8.6	23.8	11.2	32.4		23.2	9.6
		86.9	69.5												
39.9	27.9	45.0	32.1	48.4	32.7	33.7	22.9	26.3	13.3	24.8	10.6	28.6	16.1	28.7	15.0
22.5	12.0	41.1	26.9	48.9	35.0	39.4	28.3	38.1	27.5	28.4	18.0	27.9	15.3	25.3	14.3
57.1	38.7	53.7	38.9	34.2	14.8	23.0	12.5	†20.8	8.4	22.8	7.5	28.6	11.0	28.2	13.2
76.5	55.5	55.9	40.2	30.1	14.3	†17.7	3.8	12.4	3.8	17.2	5.3	11.5	1.0	36.8	21.3
77.8	61.3	73.8	55.9	35.4	23.9			†17.2	5.7	24.6	6.1	16.2	2.0	30.7	16.4
22.4	13.0	29.1	20.1	23.9	14.4	20.5	10.9	17.8	8.0	14.3	5.6	19.3	10.1	17.7	7.9
21.6	13.5	32.2	20.4	27.6	16.3	22.8	12.9	21.9	12.6	15.9	5.4	15.1	5.6	18.1	8.3
103.2	84.4	76.5	55.5	40.7	23.6	43.3	23.2	19.2	6.6	23.6	7.0	29.3	10.1	40.9	22.6
63.7	48.2	67.4	52.4	48.9	45.7	33.0	21.5	27.7	13.5	19.5	8.5	18.7	6.8	30.8	19.0
65.3	51.2	77.4	61.6	75.1	56.6	43.1	27.6	33.7	16.2	20.2	6.7	18.9	8.1	36.6	24.0
106.1	85.1	118.4	93.0	62.1	45.4	35.9	21.6	27.0	10.4	21.7	5.0	22.2	5.9	41.6	24.3
56.6	42.3	67.8	52.2	58.2	44.0	35.6	22.8	22.8	10.5	17.9	6.6	15.8	4.2	30.0	17.8
23.1	10.2	46.3	33.6	67.9	57.7	47.5	38.2	29.5	17.0	20.4	7.5	12.7	2.4	24.8	15.5
55.0	46.3	54.4	42.5	37.0	27.2			25.5	13.9	18.5	11.0	21.1		24.8	13.9
156.0	136.1	107.7	89.4	52.4	35.6	23.7	11.1	18.1	4.9	†16.2	3.0	13.4	2.8	46.6	32.1
50.9	34.2	91.7	50.6	99.5	55.4	71.7	70.1	60.8	46.8	45.8	33.8	37.9	12.2	46.3	27.2
68.8	50.4	61.7	43.1	39.8	26.7	26.3	12.9	20.0	7.1	†18.4	6.5	15.6	4.5	31.6	17.9
87.3	63.9	65.2	41.5	32.4	23.0	24.0	9.1	22.1	7.5	24.3	4.2	17.2	7.8	33.0	18.0
32.9	20.1	53.7	41.9	50.0	41.1	28.9	20.5	20.5	10.2	17.7	7.9	20.3	7.3	24.8	13.3
25.3	12.4	27.3	15.6	28.4	17.2	26.2	15.3	26.5	15.2	25.3	12.7	27.4	15.7	20.7	9.5
25.1	15.2	22.5	11.5	30.1	20.6	34.4	22.1	36.2	27.3	27.3	17.8	22.5	12.5	20.8	11.5
31.3	14.2	75.9	60.1	87.6	80.4	67.2	45.1	36.0	21.6	23.0	9.8	18.4	6.1	33.9	20.4
95.0	81.7	58.2	45.2	30.7	22.0	20.7	9.0	22.6	7.4	†11.6	2.3			42.4	26.9
22.7	9.7	39.6	27.4	34.8	22.9	29.6	17.1	21.3	9.1	17.5	8.4	17.1	5.6	20.2	8.7
100.5	80.7	65.6	50.5	39.2	23.5	20.9	7.1	†18.3	5.5	18.0	4.8	18.6	5.5	37.3	22.5
61.0	48.0	46.8	26.7	30.6	17.7			†13.8	3.9	15.9	8.7	18.3	3.6		

mortality wave.

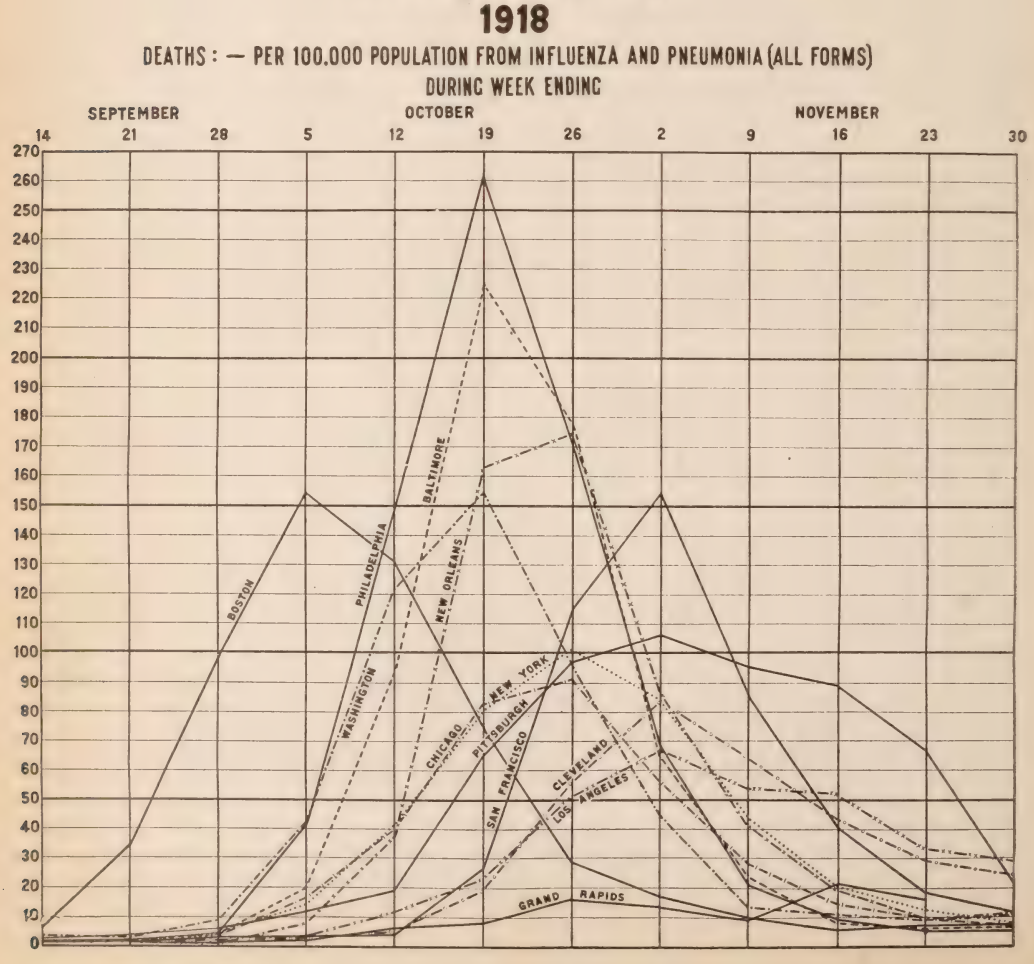
Probably, therefore, the best way is to measure the epidemic by both methods and then attempt to reconcile any great differences found. The toll per 1,000 as determined by both these methods is given in the *Index* for the week ending November 30. And in the same issue it also appears that the death-rates have so nearly approached their normal levels that only nine are above 25 and only two, Pittsburgh and Indianapolis, above 30. The tables of the November 30 *Weekly Health Index* appear at the end of this paper. For purposes of comparison the column of deaths from influenza and pneumonia in September, October, and November, 1917, has been added to the summary table.

Reduced to annual rates the picture is shown in chart on page 53, each bar representing the annual rate from all causes for the twelve-week period so far as reported, and the solid portion of the bar the annual rate from influenza and pneumonia (all forms).

Similar rates for each week for each city are given in the table on pages 54–55.

Curves showing the mortality per 100,000 population for influenza and pneumonia (all forms) for each week are shown for a few cities in chart below.

Why do these curves vary so much? A



study of the differences in the peoples affected, differences in their modes of living and employment, differences in climatic conditions, etc., etc., will doubtless lead to partial explanations, at least. Apparently it is not simply a question of time, for the curves for Boston, Washington, and San Francisco are almost identical.

But I am digressing, for the function of the *Weekly Health Index* is to point out differences, not to explain them.

Weekly Health Index.

As a health index the Bureau of the Census is publishing each week mortality reports from the largest cities in the United States.

There are given for each city the total number of deaths reported (stillbirths

SUMMARY

INFLUENZA EPIDEMIC

(Covering 12 weeks ending September 14 to November 30, inclusive)

Cities in order affected	First week	Maximum week	Week when death rate (all causes) reached normal level.	Deaths from influenza and pneumonia (all forms)		Excess deaths[c] from all cause		FOR COMPARISON Number of deaths from influenza and pneumonia (all forms) in September, October, November, 1917.[c]
				Number	Number for 1,000 population	Number	Number for 1,000 population	
Boston	September 14	4th	10th	4510	5.7	4292	5.5	290
Worcester	September 21	"	9th	919	5.3	a		43
Lowell	" "	"	8th	534	4.9	520	4.8	28
Fall River	" "	"		b 704	5.5	781	6.1	23
Providence	" "	5th	10th	1086	4.1	1106	4.2	73
New York	" "	6th.		21514	4.1	19988	3.8	1,919
Cambridge	September 28	2nd.	7th	504	4.5	552	5.0	25
Syracuse	" "	4th	9th.	b 915	5.7	a		38
New Haven	" "	5th.		b 783	5.1	785	5.1	52
Wasnington	" "	4th.	8th.	2082	5.2	1997	5.0	102
Jersey City	" "					a		111
Pittsburgh	" "	7th.		3710	6.3	4003	6.8	494
Philadelphia	" "	4th.	9th	13025	7.4	13029	7.4	583
Indianapolis	" "	4th.		b 584	2.0	570	2.0	72
Chicago	" "	5th.		9133	3.5	8490	3.3	528
Buffalo	" "	"	9th.	2293	4.8	2289	4.8	166
Baltimore	" "	4th.		3612	6.4	3921	6.5	261
Milwaukee	" "	5th		821	1.8	777	1.7	104
Minneapolis	" "	"		b 671	1.7	629	1.6	78
Birmingham	" "	"	7th	622	3.1	319	1.6	109
Newark	" "	"		1873	4.4	1792	4.2	100
Richmond	October 5	3rd.		667	4.2	615	3.8	57
Kansas City	" "	5th.		1085	3.5	a		70
New Orleans	" "	4th.		2134	5.6	2127	5.6	114
Denver	" "	"		904				60
Louisville	" "	"	7th.	735	3.0	756	3.1	80
Columbus	" "	"		526	2.3	524	2.3	50
Cincinnati	" "	"		1280	3.1	1227	2.9	120
Nashville	" "	3rd.		680	5.2	694	5.6	45
Atlanta	" "	4th.	5th.			226	1.1	77
Los Angeles	" "	5th.		1877	3.3	1838	3.2	103
Cleveland	" "	"		2686	3.3	2325	2.9	223
Albany	" "	4th	9th.	592	5.3	560	5.0	26
Memphis	" "	3rd	7th.	b 534	3.4	a		42
Omaha	October 12	2nd.		b 527	2.9	a		55
St. Paul	" "	6th.		b 624	2.4	632	2.5	43
Seattle	" "	3rd.		703				40
Dayton	" "	"	6th.	533	4.1	441	3.4	44
Rochester	" "	"		808	3.1	613	2.3	69
St. Louis	" "	4th.		1714	2.2	1417	1.8	267
Oakland	" "	"		b 702	3.3	750	3.5	44
Grand Rapids	" "	6th.		b 128	0.9	137	1.0	15
Spokane	" "	3rd.		b 266				18
Portland	" "	4th.		676				51
San Francisco	" "	"		2247	4.7	2191	4.6	142
Toledo	" "	3rd.		523	2.0	427	1.6	41

a Complete data not received.
b Deaths for eleven weeks only.
c Excess deaths means the number of deaths from all causes in excess of the number which it is estimated would have occurred under normal conditions.

excluded), the death-rate, the number of deaths under one year of age, and the proportion of infant deaths to total deaths.

Where the data are obtainable for the previous five years, averages for the corresponding weeks are given for each city.

INFLUENZA EPIDEMIC

CITY	Deaths from pneumonia (all forms) during week ending[a]										
	September		October			November					
	14-28	5	12	19	26	2	9	16	23	30	Total
Total	1573	2044	4606	7649	7732	5103	2667	1848	1320	926	35468
Albany	4	2	11	22	34	24	7	6	0	6	116
Atlanta	11	7	25	42	86	39	31	27	24		292
Baltimore	31	87	371	793	600	204	75	30	36	31	2258
Birmingham	8	11	9	12	19	15	9	11	9	15	118
Boston	295	225	177	126	52	38	21	20	21	20	995
Buffalo	36	41	98	125	134	90	38	20	6	16	604
Cambridge	34	27	15	13	4	6	2	4	5	3	113
Chicago	113	246	476	863	826	456	250	155	105	69	3559
Cincinnati	15	15	20	21	19	14	16	9	17	16	162
Cleveland	23	15	22	64	106	153	102	82	54	52	673
Columbus	11	10	13	28	21	9	8	10	4	8	122
Dayton	5	5	11	38	43	31	10	4	5	3	155
Denver	14	19	25	19	34	28	27	26	23	34	249
Fall River	11	11	9	23	10	6	5	7	2		84
Grand Rapids	3	3	7	6	15	15	7	17	14		87
Indianapolis	19	24	16	110	97	71	47	39	53		476
Jersey City	29	50	144		225						448
Kansas City, Mo.	15	11	21	55	75	55	35	34	24	39	364
Los Angeles	16	14	41	31	49	53	37	47	20	23	331
Louisville	16	14	77	154	157	60	50	37	32	42	639
Lowell	25	64	104	85	65	19	6	6	7	1	382
Memphis			67	152	127	60		15	13	6	440
Milwaukee	22	15	54	83	126	90	73	55	34	69	621
Minneapolis	13	13	11	10	22	16	9	10			104
Nashville	5	5	29	47	27	13	10	7	6	13	162
Newark	12	22	70	126	137	138	62	39	24	22	652
New Haven	6	6	9	22	29	27	10	13	3		125
New Orleans	8	17	49	177	233	117	60	33	11	22	727
New York	317	434	1142	2009	2251	1855	1070	568	365	80	10091
Oakland	6	3	11	21	25	28	16	15	7		132
Omaha	3	7	22	22	7	10		12	4		87
Philadelphia	128	307	938	1644	1182	467	157	80	53	67	5023
Pittsburgh	62	57	102	161	457	537	192	230	173	117	2088
Portland	7	3	8	25	11	16	6	3	5	2	86
Providence	36	38	61	62	48	32	16	13	11	8	325
Richmond	9	20	42	73	43	b	3	7	9	7	213
Rochester	9	6	22	25	28	33	20	9	4	8	164
St. Louis	45	25	46	76	75	87	65	54	65	83	621
St. Paul	6	1	30	11	10	11	11	15	9		104
San Francisco	35	15	19	42	58	59	38	24	18	14	322
Seattle	10	6	16	22	7	17	5	6	3	4	96
Spokane	3	1	2	5		3	6	3	1		24
Syracuse		14	3	50	32	10	8	7	2		126
Toledo	7	3	7	19	43	41	33	18	9	7	187
Washington, D.C.	36	57	101	97	61	36	14	13	16	19	450
Worcester	54	68	53	38	22	14		8	14	b	271

a Blank spaces indicate that no report has been received.
b Included with deaths from influenza.

As weekly figures always fluctuate widely, caution must be used in their interpretation. However, these totals, rates, and percentages permit valuable comparisons and serve as a ready health index for health officers and others.

INFLUENZA EPIDEMIC

City	Deaths from influenza during weeks ending[a]										
	September		October			November					
	14-28	5	12	19	26	2	9	16	23	30	Total
Total	1122	2715	6814	12290	13114	9754	5806	3217	2226	1741	58,799
Albany			34	88	152	131	45	14	4	8	476
Atlanta			5	39	15						59
Baltimore	?	30	192	564	473	193	72	21		9	1554
Birmingham	1	5	52	98	114	70	37	35	35	57	504
Boston	791	989	850	463	174	99	55	27	33	34	3515
Buffalo	?	7	82	406	591	365	130	60	28	20	1689
Cambridge	82	113	100	50	17	13	3	5	4	4	391
Chicago	18	171	571	1242	1541	1014	488	235	146	148	5574
Cincinnati		3	47	171	262	234	147	88	88	78	1118
Cleveland		3	18	94	347	529	422	269	186	145	2013
Columbus		?	15	45	96	85	42	26	39	56	404
Dayton			20	96	94	84	57	17		10	378
Denver		?	34	120	113	80	74	51	85	98	655
Fall River	18	86	192	169	87	34	19	7	8	5	625
Grand Rapids			?	5	7	3	6	12	8		41
Indianapolis	?	?	30	18	18	13	11	9	9		108
Jersey City	?	16	87		200						303
Kansas City, Mo.		26	75	113	118	142	103	46	40	58	721
Los Angeles		?	28	100	244	329	272	253	176	144	1546
Louisville		?	15	26	24	9	8	2	3	9	96
Lowell	16	29	37	31	19	11	2	2	4	1	152
Memphis			13	30	39	11		2	5		100
Milwaukee	?	?	15	30	49	35	22	15	15	19	200
Minneapolis	?	?	37	89	128	104	86	83	40	41	608
Nashville			100	146	100	41	43	8	10	10	458
Newark	2	31	119	270	294	238	115	72	46	34	1221
New Haven	11	30	68	130	154	141	72	35	17	18	676
New Orleans		12	95	447	449	216	98	43	26	21	1407
New York	54	299	979	2218	2971	2547	1207	485	292	171	11223
Oakland			7	21	113	209	141	55	31	10	587
Omaha			46	138	140	84		36	34		478
Philadelphia	?	399	1697	2953	1839	736	218	84	50	26	8002
Pittsburgh	1	12	12	228	119	93	606	302	212	22	1607
Portland			?	16	83	141	150	84	80	36	590
Providence	?	61	125	193	170	103	49	23	22	15	761
Richmond	2	21	89	124	85	71	25	16	4	17	454
Rochester			14	77	185	176	84	43	36	29	644
St. Louis			40	110	158	170	164	174	125	152	1093
St. Paul			31	64	47	91	98	120	79	62	592
San Francisco			?	88	494	679	376	174	72	42	1925
Seattle			59	86	153	92	80	63	31	43	607
Spokane			2	14	40	16	65	43	29	33	242
Syracuse	38	125	216	203	108	58	20	16	5		789
Toledo			2	30	95	74	53	28	33	21	336
Washington, D. C	17	116	387	525	328	145	41	29	21	23	1632
Worcester	71	131	177	122	67	45		5	15	12	645

a Blank spaces indicate that no report has been received.

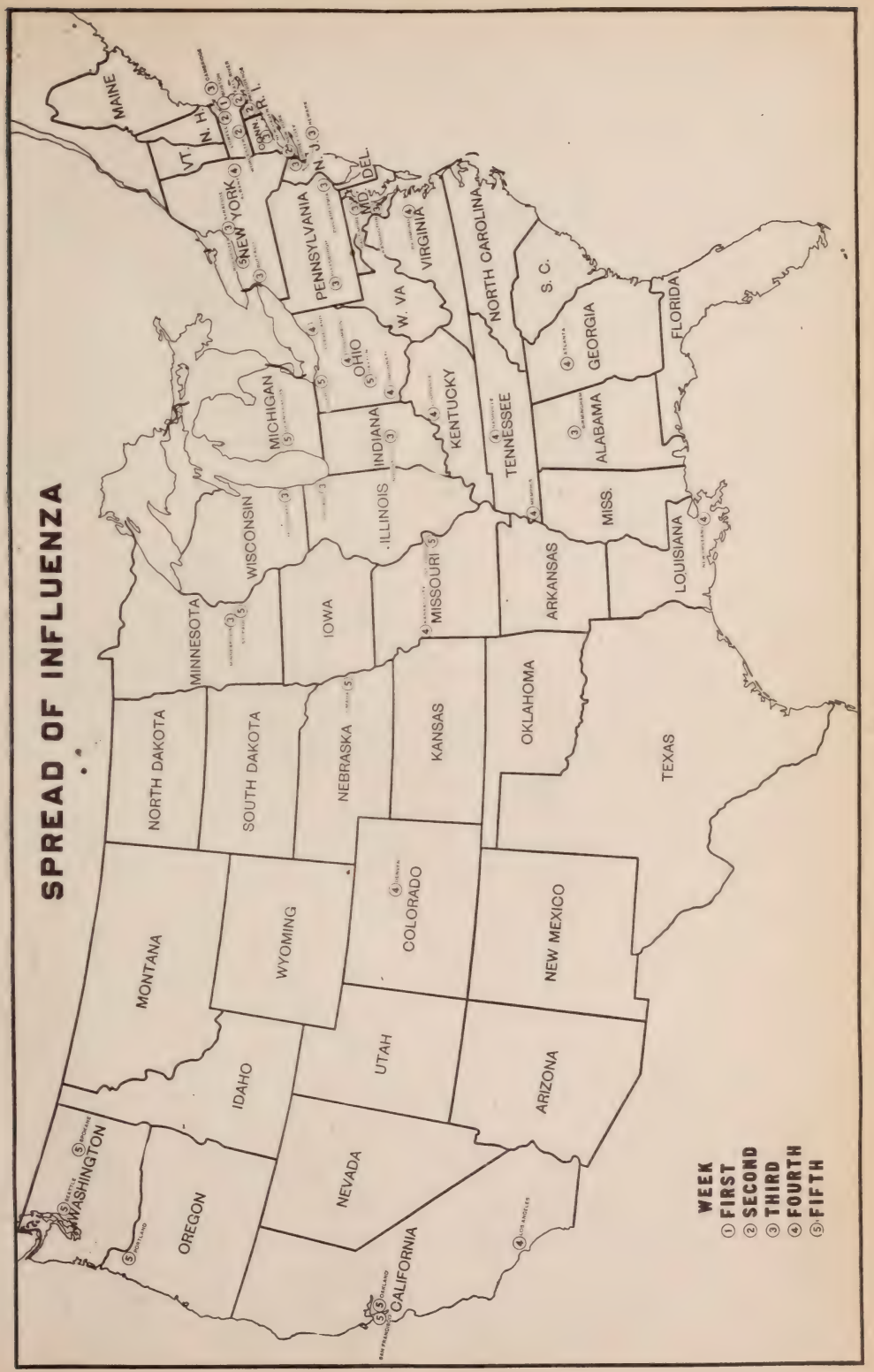
? The abnormal number of deaths reported from pneumonia (all forms) makes it seem probable that some of these deaths were due to epidemic influenza.

DEPARTMENT OF COMMERCE
Bureau of the Census
Washington

Deaths (stillbirths excluded) reported during the week ending November 30, 1918, with death rates, in large cities of the United States.

CITY.	Estimated population July 1, 1918.[a]	Week ending November 30,1918.				C = Corresponding week, 1917. A = Average of corresponding weeks, 1913-1917.			
		Total deaths	Death rate[b]	Deaths under 1 year	Deaths under 1 year per cent of total	Total deaths	Death rate[b]	Deaths under 1 year	Deaths under 1 year per cent of total
Total.	21,534,648	8,276	1960	832	10.1	[c]	[c]	[c]	[c]
Albany[d]	112,565	49	22.7	3	6.1	C 27.	12.7	4	14.8
Atlanta	261,732	75	19.4	2	2.7	C 57	15.2	2	3.5
Baltimore[d]	599,653	212	18.4	25	11.8	A 184	16.4	28	15.3
Birmingham	197,670	107	28.2	7	6.5	A 59	17.6	7	11.3
Boston	785,245	241	16.0	36	14.9	A 223	15.5	31	13.7
Buffalo	473,229	157	17.3	24	15.3	A 101	11.6	19	18.6
Cambridge	111,432	40	18.7	3	7.5	A 31	14.6	5	15.0
Chicago	2,596,681	781	15.7	94	12.0	A 607	12.9	103	17.0
Cincinnati	418,022	197	24.6	15	7.6	C 128	16.1	17	13.3
Cleveland[e]	810,306	343	22.1	15	4.4	C 175	11.7	24	13.7
Columbus	225,296	128	29.6	7	5.5	C 42	10.0	1	2.4
Dayton	130,655	32	12.8	5	15.6	A 36	14.8	5	13.5
Denver	[g]	201	[g]	7	3.5	A 64	[g]	[c]	[c]
Fall River[d]	128,392	35	14.2	5	14.3	C 31	12.7	12	38.7
Grand Rapids	135,450	50	19.2	5	10.0	C 32	12.6	4	12.5
Indianapolis	289,577	180	32.4	6	3.3	C 85	15.7	10	11.8
Kansas City, Mo.	313,785	172	28.6	15	8.7	C 80	13.6	5	6.3
Los Angeles	568,495	304	27.9	21	6.9	A 129	14.2	16	12.1
Louisville	242,707	133	28.6	4	3.0	C 78	16.9	9	11.5
Lowell	109,081	24	11.5	6	25.0	A 26	12.7	3	10.6
Memphis	154,759	48	16.2	3	6.2	C 48	16.5	3	6.3
Milwaukee	453,481	168	19.3	28	16.7	A 94	11.4	18	18.8
Minneapolis	383,442	111	15.1	12	10.8	C 73	10.2	13	17.8
Nashville	119,215	67	29.3	4	6.0	C 30	13.2	1	3.3
Newark	428,684	154	18.7	27	17.5	A 103	13.4	c	c
New Haven	154,865	56	18.9	5	8.9	C 51	17.5	9	17.6
New Orleans	382,273	163	22.2	15	9.2	A 150	21.3	18	12.0
New York	5,215,879	1,577	15.8	200	12.7	A1362	14.1	207	15.2
Oakland	214,206	52	12.7	1	1.9	A 44	12.0	5	10.5
Omaha	180,264	73	21.1	10	13.7	C 40	12.4	4	10.0
Philadelphia[f]	1,761,371	454	13.4	67	14.8	482	14.7	62	12.9
Pittsburgh	593,303	431	37.9	39	9.0	C 213	18.9	37	17.4
Portland, Oreg.	[g]	78	[g]	9	11.5	C 62	[g]	10	16.1
Providence	263,613	79	15.6	10	12.7	C 73	14.7	10	13.7
Richmond	160,719	53	17.2	3	5.7	C 49	16.1	7	14.3
Rochester	264,856	103	20.3	12	11.7	C 68	13.7	7	10.3
St. Louis	779,951	410	27.4	24	5.9	C 197	13.4	18	9.1
St. Paul	257,699	111	22.5	9	8.1	C 60	12.4	5	8.3
San Francisco	478,530	169	18.4	10	5.9	C 141	15.6	4	2.8
Seattle	[g]	118	[g]	12	10.2	A 46	[g]	3	6.9
Spokane	[g]	50	[g]	2	4.0	C 19	[g]	1	5.3
Toledo[e]	262,234	86	17.1	9	10.5	A 57	13.1	9	15.4
Washington, D.C.	401,681	143	18.6	8	5.6	A 119	16.5	13	11.0
Worcester	173,650	61	18.3	8	13.1	C 52	15.9	13	25.0

[a] Populations have been estimated by the arithmetical method based upon the Federal and state censuses except when otherwise indicated.
[b] These rates represent annual rates per 1,000 estimated population.
[c] Not available.
[d] Deaths for week ending Friday, November 29, 1918.
[e] Population estimated by an alternative method.
[f] Figures for average deaths are based on statistics of 1915, 1916, and 1917.
[g] No estimate of population made.


SPREAD OF INFLUENZA
MAINE
VT.
N. H.
MASS.
R. I.
CONN.
NEW YORK
PENNSYLVANIA
N. J.
DEL.
MD.
W. VA
VIRGINIA
NORTH CAROLINA
S. C.
GEORGIA
FLORIDA
ALABAMA
MISS.
LOUISIANA
TENNESSEE
KENTUCKY
OHIO
INDIANA
ILLINOIS
MICHIGAN
WISCONSIN
MINNESOTA
IOWA
MISSOURI
ARKANSAS
OKLAHOMA
TEXAS
KANSAS
NEBRASKA
NORTH DAKOTA
SOUTH DAKOTA
COLORADO
NEW MEXICO
ARIZONA
UTAH
NEVADA
IDAHO
WYOMING
MONTANA
OREGON
CALIFORNIA
WASHINGTON
WEEK
① FIRST
② SECOND
③ THIRD
④ FOURTH
⑤ FIFTH

PUBLIC SCHOOLS OF CHICAGO DURING INFLUENZA EPIDEMIC, 1918.

H. O. Jones, M. D.
Dept. of Health, Chicago, Ill.

Discussion before the American Public Health Association at the Meeting at Chicago, December 10, 1918.

I RESPECTFULLY submit the following report of Chicago's experience during the recent influenza epidemic with reference especially to the public and parochial schools:

With the spread of the influenza epidemic and the threatened outbreak of this disease in Chicago the question as to whether or not the public and parochial schools in which about 500,000 children assemble daily should be closed was a serious problem, especially so, since in many other cities a precedent of closing schools had been established.

A conference of prominent representatives of the various agencies actively interested in the children's welfare was called September 28 by the commissioner of health, and the question of closing schools was thoroughly debated. It was noted that the sanitation in our schools is uniformly good and that the hygienic conditions of environment are better in schools than those which obtain among the children when classes are discontinued. When in school the children are under the observation of doctors, nurses and teachers, while on the outside there is no limit to their possible contact, under conditions in which this supervision is lacking. The consensus of opinion was in favor of keeping the schools open for the following reasons:

1. A better knowledge of existing conditions would be acquired when the schools were made a source of information as to sickness among the children and their families.

2. It would be possible to supervise the children and keep many of them under better environment during the school hours than if they were allowed to stay at home and run in streets and alleys, or play on premises where persons sick with the disease are domiciled.

3. Because we have an organized staff of physicians and nurses for medical inspection of schools.

Having decided to keep the schools open plans were formulated to increase the safeguards of the children as far as possible.

The superintendent of schools was requested to arrange that the classrooms be so heated as to permit thorough frequent flooding of all rooms with fresh air, without chilling the children, and that the rules against dry sweeping be strictly enforced in the school buildings. These requests were made and complied with because it was agreed that fresh air and freedom from dust, the avoidance of chilling and everything that tends to reduce vitality were primary requisites in combating influenza.

With the increasing prevalence of the epidemic another letter was sent to the superintendent of schools requesting that all classrooms in all schools be made open-window rooms, that is that windows remain open all the time in all the rooms, heat being supplied and the children being permitted to wear their street wraps to avoid any possible chance of becoming chilled. The object of this last request which was complied with was to supply the maximum of fresh air.

In addition to these measures the routine medical work in schools was discontinued and the staff of physicians and

nurses concentrated on inspection of school children for contagious diseases, especially influenza. The staff excluded all children found having any signs of the disease or prodromal symptoms; and all children coming from a home where there was a case of influenza. Teachers made inquiry each morning for any pupils not feeling well and referred such children to the school doctor for an examination. All absentees were subject to a rigid inspection and examination before being permitted to reënter school.

The school health officers and nurses visited the homes of as many absentees as possible and where sickness was found they instructed the families as to the proper isolation of the patient and the care and protection of themselves. They notified the Department of Health of influenza cases found and also reported when they discovered a family that needed medical assistance or relief.

During the month of October approximately 300,000 inspections of school children were made by the school physicians. During the epidemic the nurses made 30,000 house calls.

A study of the absentees by days during the period October 4 to November 12 shows that the peak of absences occurred at the time when the epidemic was at its height. Absentees averaged about 25 to 30 per cent for this period—the northwest and south side being affected about equally.

The home calls showed that absence of pupils was only in part due to illness of the children, some was due to illness or death in the family and some to the voluntary keeping of children from school by parents for fear of contracting the disease.

An analysis of 15,000 reported cases shows about 14 per cent occurred in children under eighteen years of age. An analysis of the mortality from influenza and pneumonia by school age groups during the period September 22 to November 12 is as follows:

Ages	Influenza	Pneumonia
5 to 10	5.29%	4.46%
10 to 15	2.55%	2.67%
15 to 20	4.31%	3.55%

We believe that in view of the results just noted that the decision of keeping the schools of this city open during the recent influenza epidemic was justified.



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LEE K. FRANKEL, PH. D.

THE NEW OFFICERS OF THE A. P. H. A. AND THE WORK OF NEXT YEAR.

The following officers were elected at the Chicago meetings of the Association:

President, Lee K. Frankel, Ph. D., New York City.
1st Vice-President, Lt.-Col. J. W. S. McCullough, C. A. M. C., Toronto, Ont.
2nd Vice-President, Col. Victor C. Vaughan, M. C., Washington, D. C.
3rd Vice-President, John D. Robertson, M. D., Chicago, Ill.
Treasurer, Guilford H. Sumner, M. D., Des Moines, Iowa.
Secretary, A. W. Hedrich, Boston, Mass.

Together with the president, treasurer and secretary, the following will compose the Executive Committee, with terms expiring as noted:

A. J. McLaughlin, Asst. Surgeon General, U. S. P. H. S. (1921).
W. A. Evans, M. D., Chicago, Ill. (1921).
Charles J. Hastings, M. D., Toronto, Ont. (1920).
Peter H. Bryce, M. D., Ottawa, Ont. (1920).
W. C. Woodward, M. D., Boston, Mass. (1919).
J. N. Hurty, M. D., Indianapolis, Ind. (1919).

A complete list of the Board of Directors appears elsewhere in this issue.

Three important and specific problems that confront the Association for the coming year are the following: the establishment of a popular health magazine, the organization of state health societies; and the taking of first steps in co-relating the numerous health societies which exist today. All three of these are related to a fundamentally new policy adopted by the Board of Directors to engage in a program of positive health building, in addition to the more negative activity of disease prevention or mitigation. This is in harmony with a resolution passed by the recent Conference on Reconstruction, held in New York City.

More will be said concerning these matters as soon as the Executive Committee can meet and formulate a definite program.

No one could have been found better qualified to assume leadership in these important matters than our new president, Dr. Lee K. Frankel. His activities during the past few years as treasurer and member of the Executive Committee, have given him intimate knowledge of the affairs of our Association. On the other hand, he has long had close and constant contact with every national public health agency of importance on the continent. Along with this ripe experience, Dr. Frankel brings a genius for organizing; for analyzing problems, conceiving adequate plans of action and putting them into effect; for bringing coöperation out of personal maladjustments —in short for getting big things done. A fine tribute to his ability was his appointment as chairman of the emergency Influenza Commission of New York City, during the recent epidemic.

A strong Executive Committee has been elected. But Napoleon, and the wisest cabinet under heaven could not build an empire by themselves; nor can our officers reach the goal set by the Association without the most generous help. The president and Executive Committee will, during the next year ask every member of the Association for coöperation in letters and through the columns of the JOURNAL. Let every member respond to the limit of his ability.

DR. BRYCE ELECTED TO HONORARY MEMBERSHIP.

Last year a Canadian, Dr. Charles J. Hastings, honored the Association as president; and those who were privileged to attend the sessions over which he presided, congratulate themselves over this fact.

During the Chicago meetings, the Association elected to honorary membership another Canadian, Dr. Peter H. Bryce, former president of the Association. Dr. Bryce has been a member of the Association since 1883—thirty-five years ago. During this time, he has given freely of his time and energy to the public health cause. The honorary membership comes as a richly deserved token of the affectionate regard of the public health profession.

OUR KNOWLEDGE CONCERNING INFLUENZA.

When Noah received warning of the coming of the flood, he did not bother about the distant future, but provided for what he knew would happen in the immediate future. He built his ark, loaded her up with a pair of each animal species, and persuaded as many of his relatives as possible to come in. It probably didn't occur to Noah, at all, to have a few control arks set up in other lands for corroborative evidence, or to post a few weather prophets in various places for the benefit of science. If he had, more than likely his relatives would have taken command from him and chained him in the hold of the ark. As a result, the world now lacks a great deal of interesting information concerning the flood.

Much the same kind of thing seems to have happened in the recent epidemic of influenza. So great was the pressure for action, that very few were able to devote any time to observation for the sake of the future. The health officer did the best he could by way of prevention, and then devoted himself to save as many of the sick from dying, as possible. Had he done otherwise, probably he would have been accused of day-dreaming during a calamity.

We find, therefore, that our data concerning the disease are in many cases incomplete or confused, and that few definite conclusions can be drawn at this time. Disagreeable as is this situation, it is better than "to know some things that ain't so."

The influenza reference committees are entitled to great credit for their promptness in reporting. Within forty-eight hours after the close of the meetings of the Association, a sixteen-page bulletin was on its way to all who registered at the Convention. The report is reprinted in this issue of the JOURNAL, and states concisely what can be said about influenza under our present knowledge. The committees will present later reports as soon as more information becomes available.

Following are some of the more important statements made by the committee:

The causative organism is as yet unknown.

No vaccine tried against influenza has to date proved its efficacy, but anti-pneumococcic vaccines against the sequelæ show more promise.

The use of convalescent serum in treatment seems to be valuable.

More well-controlled experiments must be made with face-masks, before the utility of general masking of the population can be determined.

The exact modes of transmission are somewhat in doubt. New evidence has been introduced tending to show that at least in army camps, improperly washed (unboiled) eating and drinking utensils were responsible for part of the spread.

Whether or not it pays to "close up" a town depends upon local conditions.

Probably not less than 400,000 have died from the epidemic in the United States to date.

THE MOST SUCCESSFUL MEETING IN OUR HISTORY.

The registration at the Chicago meetings was almost an even thousand, which was about fifty per cent higher than the attendance at Washington, D. C., last year. Many more came who did not register, so that the large Banquet Hall of the Morrison Hotel was more than once filled to capacity.

The thorough preparations of the local committees, under the general chairmanship of Dr. W. A. Evans commanded the admiration of all.

The most striking innovations were the exhibits, of which twenty were of a strictly scientific nature, and twelve, commercial. A committee headed by Dr. D. J. Davis was responsible for the first and another under Dr. Arthur R. Reynolds provided the second. Both exhibits were highly successful, and we may assume that the practice will become a permanent one at our annual meetings, for both exhibitors and convention guests were very enthusiastic over the first trial.

A second departure contributed by the energetic Chicagoans was the *Daily Bulletin*, which greeted the guests each morning. The first page showed a new cartoon each day. On the first day, ten officers and members of the Association were astonished to find themselves caricatured by De Beck of the Chicago Herald-Examiner, who in a capricious moment had pictured them standing in a row singing, "We're here because we're here." It soon became apparent, however, that the Association was there for business, and, as one member remarked "not for riotous living."

Mr. E. R. Pritchard, Secretary of the Chicago Health Department, was originally in charge of the Bulletin, and, therefore, incurred the wrath of the individuals pictured on the "We're here" cartoon. Beginning with the first day, however, the newspaper reporters kept Mr. Pritchard so busy hunting up "flu stories," that he was compelled to delegate the editing of the "Bulletin" to Dr. Ethan A. Gray. Thereafter the cartoons became more dignified, depicting, for example, the Association as a be-spectacled little professor standing on a pile of scientific books, injecting "flu serum" into an agonized Uncle Sam, by means of a syringe about the size of a ten-gallon ice-cream freezer can.

The other features of the "Bulletin" include registration lists and general announcements.

All of this took money, but the general chairman had wisely put the resourceful Health Commissioner of Chicago, Dr. John Dill Robertson, in charge of the finance committee, with the result that not only does the Association leave Chicago with all expenses paid, but a comfortable surplus will be turned into the Association treasury. The Health Department laboratories, chart-rooms, clinics, and sanatoria were also thrown open to the convention guests, with the result that many returned to their cities with new information and enthusiasm for their local work; for the Chicago Health Department, with its annual appropriation of two million dollars, has built up a remarkably efficient organization.

A committee under the chairmanship of Mr. Langdon Pearse arranged for trips to places of interest. The best attendance was at the trip to the Union Stock-yards. The guests were shown through the plant of Swift and Co., were dined, and returned to convention headquarters seemingly very contented, despite the distinctive Stock-yards odor which, in diluted form, returned with them. It was formerly said that the packers utilized all of the pig except the squeal; but when trade relations are again established with Germany, a brisk export trade in this last product is to be expected.

Dr. H. O. Jones was in charge of meeting places, Dr. Heman Spalding of hotels, and Mrs. Alice Wood of entertainment of ladies.

Over two hundred and fifty new memberships have come to the Association as a result of the meeting, and this was largely due to the untiring work of the committee headed by Dr. C. St. Clair Drake and Dr. I. D. Rawlings. Dr. H. N. Bundesen, chairman of the entertainment committee, was especially active at the registration desk and helped many a prospective member over the river of doubt by courteously explaining the aims, work and benefits of the Association. This committee was also responsible for the admirable convention badge.

The Association is indebted to the Hotels Morrison and LaSalle. The Morrison furnished gratis most of the meeting rooms and two whole floors for exhibits and head-

quarters, and the LaSalle housed the meetings of two sections. The courtesy and efficiency with which the arrangements were made deserve commendation.

Shortly before the close of the Tuesday night session, the meeting voted to move forward the section meetings of Thursday morning, in order to allow more time for general influenza discussion. This upset the plans for room assignments, including those for a round-table luncheon, and caused the only noticeable hitch in the convention. This is to be expected, however, when sudden changes are made from the printed program, and in no way reflects upon the hotel or the local committees.

The Association of Commerce of Chicago contributed the most valuable coöperation both before and during the meetings. Not only did Mr. Armstrong of the Convention Bureau arrange for registration clerks, but he was in personal charge of the registration desk most of the time. Miss Mae Brown, secretary to Dr. Evans, performed valuable service in supervising general headquarters.

To all these generous coöperators, the Association owes a great debt of gratitude. There are many others whom we cannot mention personally, for fear of unduly prolonging this article. They have given the Association its best meeting, and have set an example which will guide our hosts in the future.

CORRECTION

On the cover of the December, 1918, issue reference was made to the free health employment services of the Association extended to sanitarians who are returning from the war. The reader was referred, at the same time, to page xviii, which was an advertising announcement. This should have referred, instead, to page 928, upon which full details concerning the health employment services of the Health Association were given. The annual meeting necessitated the reading of proof by an assistant unfamiliar with the routine, which accounts for the error.



Members who went to Chicago will recognize this picture of Hotel La Salle, which treated the company in royal good fashion.

ASSOCIATION NEWS

HELP WANTED.

In order to help relieve the shortage of sanitarians due to the war, free help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Graduate physician as surgeon in Pennsylvania manufacturing plant employing about 5,500 men. Surgeon to take charge of Main Dispensary and three auxiliaries, all thoroughly equipped; also to examine all employees. Salary from $3,000 to measure up to ability of the individual. Address No. 177, J. E. W., care of this JOURNAL.

Superintendent of health in Connecticut who must be a graduate physician. Executive staff consists of twelve employees with bacteriological laboratory. Salary, $2,500 with prospect of advance to $3,000 in a short time. Address No. 181, R. E. T., care of this JOURNAL.

Laboratory worker to take charge of branch laboratory in North Dakota. Straight public health work, milk and water examinations, with whatever clinical examinations in the way of urine analyses, blood counts, and gastric contents as may be offered. Salary, $1,800 per year with one month of vacation. Address No. 182, L. G. A., care of this JOURNAL.

Assistant professor of pathology in the University of North Dakota for courses in histology, bacteriology, pathology and hygiene. Will have some expert duties in connection with public health laboratory work. Salary, $2,500 to $2,700. Should consider a younger man for instructor for one year at $1,800. Address No. 183, F. E. H., care of this JOURNAL.

Health officer in Georgia city. Salary, $2,000 to $3,000. Address No. 184, W. L. C., care of this JOURNAL.

Sanitarian for work among the Jewish farmers in Sullivan and Ulster Counties, N. Y. Salary, $1,500 to $2,500. Address No. 185, D. G., care of this JOURNAL.



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RELATION OF VITAL STATISTICS TO PUBLIC HEALTH ADMINISTRATION.

WILLIAM F. PETRIE,
Chief of Vital Statistics, Department of State, Lansing, Mich.

Read before the Vital Statistics Section, American Public Health Association, December 9–12, 1918, at Chicago, Ill.

THAT knowledge which tends most directly to preserve life is the knowledge of the most common causes and conditions which lead to death. As, according to Herbert Spencer, that knowledge which tends directly to preserve life is "of most worth," so the most important questions to be settled are the causes and conditions which lead to most deaths. To be successful in this most important matter, there is needed, therefore, the hearty coöperation of the physicians and people in general in promptly reporting all cases of sickness, especially of those dangerous to the public health.

Vital statistics and public health administration may be termed a business proposition and can be tested by the same standards that are used to determine the value of other industrial activities.

Statistics, in brief, is a system of accounting. The executive in industry and finance requires for the efficient administration of his business, detailed analysis of the cost of production and distribution.

The health officer of the community has a problem similar to that of the business manager in industry, and it is through vital statistics that he must test the efficiency of his management.

It is the function of the vital statistician to provide the necessary data to the health officer as regards the movement of population, the number and causes of deaths, as well as data concerning births occurring in his community.

In undertaking to outline some of the reasons why vital statistics form such an indispensable part of the public health administration of all progressive cities, states and countries at the present day, we may divide the subject into two heads: (1) Why reliable vital statistics are necessary to the progressive health officer; and (2) why progressive, active, intelligent health officers are indispensable to reliable vital statistics.

Some of the reasons why reliable vital statistics are necessary to the progressive health official may be stated as follows:

1. They give him timely warning of the occurrence of epidemics and of the appearance of especially dangerous forms of communicable diseases, (a) in his own jurisdiction; (b) in adjacent districts, or in localities in the state from which his own may be especially liable to infection through routes of travel.

2. They enable him to control public funerals, using such restrictions as may be necessary to check the possible spread of infectious diseases from this source.

3. They enable him to regulate the shipment of bodies dead of dangerous communicable diseases, and to exercise such supervision as may be necessary in order that all precautions required by sanitary authorities shall be taken.

4. They enable him to check the neglect of physicians to report cases of dangerous communicable diseases.

5. They enable him to learn, and to demonstrate to the public as well, the efficiency of his work, and of the work of others, as shown by reduced mortality from certain diseases or groups of diseases.

6. They enable him to exercise a general sanitary supervision over his state or district and are especially useful in

showing the vulnerable points where efforts may best be made to improve the public health and reduce the death-rate.

In the matter of timely notification of infectious diseases, health officers, when not themselves the local registrars, should frequently consult the clerk's list of permits issued. The registrars are not medical men, and certificates of death may be filed with them containing statements of causes of death which the registrar will not understand as relating to infectious diseases, but which the more experienced judgment of the medical officer of health will at once identify. Thus "tonsilitis," "croup," or "heart failure," in localities where diphtheria has been prevailing may either by accident or design conceal a death from diphtheria. It may happen that the first information of a dangerous communicable disease may be obtained from the certificates of death, the medical attendant, if any, having neglected to report to the health officer as required by law. In such a case, the health officer has an excellent lever for the better enforcement of the law requiring physicians' reports which he can make use of as far as his judgment may approve.

As regards warnings of the presence of dangerous diseases in other districts, the *Bulletin of Vital Statistics*, issued from the office of the Secretary of State each month, ought to be most useful for this purpose. It is sent to all of the health officers in the state, and contains statements of the deaths reported in each city and county in the state from the diseases which are subject to sanitary restrictions, as well as some others.

The persistent, intelligent use of reliable vital statistics by Boards of Health in their reports and in occasional communications to the press on matters of timely interest, is one of the most effective methods of strengthening the position of public health workers in the public mind. Note that the reservation is emphatic as to the use only of fully reliable statistics, and as to their use only in an intelligent, guarded way, making full allowance for all sources of possible error and misinterpretation. To make exaggerated statements calculated to arouse and unduly alarm the public, is sure, in the long run, to react against the source of the information. Too many cries of "Wolf! wolf!" without sufficient cause may lead to apathy when there is real necessity for alarm.

Boards of Health should be especially conservative in the use of death-rates, and should strive to be on the safe side in the estimation of populations upon which such rates are based. It is very easy, and may be very tempting to a new régime in a city health department, to make a sanguine estimate of the population (which civic pride will be only too ready to sustain) or to draw inferences from the number of names in the directory, etc., as to the number of inhabitants, in such a way that the annual death rate "shows a marked decrease over any preceding year." Then similar measures must be employed for the following year to show the continued reduction of mortality that almost invariably is found necessary to sustain the public confidence, and so the matter goes on until the rude awakening of a census shows that the previous estimates of population have been very wide of the mark, or else an attempt is made to bolster up the cherished ideas of the community in its greatness by discrediting the census enumeration. It would be very desirable for purposes of vital statistics if we had a more frequent census of population, but as it is, we can adopt some of the accepted methods of making estimates for intercensal years, and should announce all death-rates as based thereon,

and draw all sanitary inferences with full reference to the amount of possible error in the data.

In studying the records of mortality for the purpose of seeing upon what points sanitary efforts may be best directed, careful consideration should not only be given to the prevalence of various diseases, but the distribution of age-periods, as especially affected by certain classes of diseases, should be noted. We may probably expect to produce more effect upon the general death-rate by the prevention and cure of diseases of children under five years, and especially by the restriction of diarrhœal diseases of infants under one or two years of age, than in any work on tuberculosis. Our death-rate from these diseases is less than that of the states having a more densely crowded population, but is far too large, especially in the larger cities of the state.

In putting together these suggestions in regard to the uses of vital statistics, I have naturally laid most stress upon mortality statistics, with which I am personally most engaged. But the term vital statistics is a very broad one, and one of the most important classes of statistics included under this term for the practical use of health officials is the statistics of sickness. I am glad to be able as an outsider not connected directly with the collection of these statistics of sickness in the office of the State Board of Health to say a commendatory word, and to endeavor to emphasize, in some slight degree, the necessity of their careful study in order to obtain a thoroughly complete idea of the conditions attending life and health in this state.

Mortality statistics do not, and can not from their nature, tell the whole story. Sickness and disability are as real as death, and the appreciation of the means for their prevention is as legitimate a function of a Board of Health as the reduction of the death-rate. Because it is somewhat more difficult to measure the volume of morbidity and to accurately show the relations of public health work to its diminution, constitutes no reason why we should not gather very valuable data on this subject, and be able to make excellent practical use thereof.

It is possible, with increased facilities, to measure the absolute amount of sickness prevalent at any time, that is to say, the total number of cases of each disease. Exhaustive statistics are, however, not necessary in this respect, by only reliable representative data. By representative data of sickness we may understand fair samples of sickness taken in a uniform and regular manner by observers stationed about the state in such a way that the average of their reports shall closely approximate to the general conditions prevailing over the state. It is evident that a sufficient number of observers must be employed, and that the manner of their distribution is very important. In general the number in any given locality should be in proportion to the population. All parts of the state must be represented, and in the changes which occur from time to time, care must be taken to see that no particular portion of the state acquires a predominating degree of influence.

With those conditions, it is believed that a very useful and accurate picture of the prevalence of sickness may be obtained. Michigan has enjoyed the benefits of such a system of reporting sickness for over twenty years, and through the continuous and persistent efforts of the secretaries of the State Board of Health during that time, a very considerable mass of material has been collected, which has proved exceedingly useful in the past in the practical work of the Board, and

will form a substantial basis with which to make comparisons in the future. It is especially valuable because it has been collected by a uniform method during the whole of that time. Statistics of any class owe much of their value to uniformity of methods, which alone renders it possible to compare successive years with accuracy, and in time establishes a normal or average condition which is useful as a basis of reference.

We may check the validity of these statistics of sickness to some extent by comparing them with the statistics of death collected by the State Department. It is, of course, to be understood that an exact correspondence cannot always exist from the nature of the data. The ratio between the amount of sickness and the amount of mortality, or the fatality of disease, is a variable one. It varies for the same disease in different epidemics, and even in different portions of the same epidemic. But, on the whole, there is a fairly close relation between sickness and deaths from a given disease, especially from diseases which have a high death-rate.

Passing to the second branch of my subject, I shall only very briefly present some of the ways in which medical officers of health may aid in the work of registration. In general, if the health officer fully appreciates the advantages which may result to his work by the utilization of reliable mortality statistics, and endeavors to avail himself of them he will aid the work of registration in the most effective way. That is:

1. By making practical use of its results. The moral support of the health officer, his influence with undertakers and with the people, and the confidence of the registrar that in case of difficulty or opposition in the execution of the law a tried and competent supporter is at hand, will naturally follow.

2. By aiding the registrar in determining causes of death.

3. By refusing to allow any body, dead of a dangerous communicable disease, to be transported into or out of his jurisdiction, unless the certificate of death has been filed with the registrar and a permit issued in due form.

4. By notifying the registrar of any cases of failure to file certificates of death that may come to his attention.

5. By giving personal attention to the work of registration, if a registrar, and seeing that the certificates are properly recorded and promptly returned.

In conclusion, while, as previously stated, in Michigan the public health and registration services are for the most part distinct, this paper has throughout been constructed upon the belief that they are fundamentally one, and that neither can develop to the best purpose and to the fullest extent unaided by the other. While the registrars are able to relieve the health officers of much tedious clerical work, with very slight compensation, thus leaving them entirely free from the more urgent duties of restricting diseases, sanitary inspections, and the like, the health officers should, nevertheless, keep a vigilant eye upon the accuracy of registration in their districts, and whenever necessary, by reason of neglect or inattention on the part of a possibly untrained registrar, take active measures to secure the completeness of returns. For this purpose the State Department will cordially coöperate at all times, and advice and assistance from the health officers of the state will always be appreciated. The fact is recognized that the present high standing of Michigan as a registration state has only been achieved through the support of the profession and people of the state derived from a long and thorough antecedent training in the appreciation of the utility of public health work

COÖPERATION OF STATE AND FEDERAL GOVERNMENTS IN REGISTRATION OF BIRTHS AND DEATHS.

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Read before Section of Vital Statistics, American Public Health Association, December 9–12, 1918, Chicago, Ill.

THAT we might better improve registration conditions in Ohio, a careful study was made of systems used in other states, and because of this study our previously conceived notions of registration methods are completely reversed.

First of all, we found that several states operating under the model law; or, better, the model law with slight and nonessential variations, showed very marked differences in results. We thought this could be explained by variations in character of the population, but a closer analysis showed this to be only a slight factor. Requirements of state medical boards were then considered, we thinking that possibly the higher standard of professional training required in some states might be a factor, but we were forced to the conclusion that this was also a negligible factor. After much consideration from every possible angle, we were forced to the conclusion that there must be some reason aside from laws, population or professional personnel, and we believe that reason is based on the personality of the head of the registration system. By personality, we mean the ability of the registrar to successfully carry on a propaganda for complete registration.

I believe the largest single factor in either success or failure is propaganda. Another preconceived notion that this study of methods has thrown overboard is the fact that our propaganda should not be directed to the physicians, but to the public. Every physician knows he should report, and he does not report because of plain, ordinary, everyday carelessness.

There is no use wasting time in hammering home and reiterating a lesson that has already been learned, for the way to reach a physician of this class is to educate his clientele to the advantages of registration and its very intimate personal value to them—and the fear of loss of business will cause this class of practitioners to comply with the law. Public opinion must be so molded that it becomes in this, as in all other governmental activities, mightier than any statute and more effective than any court decision.

I believe in prosecution, but the biggest value of prosecution is the publicity given it, with the consequent education of the public to the value of registration. The fact that a prominent physician was arrested and fined is only of value to the cause of registration because of the number of people to whom is thus pointed out the personal value of registration. We have relatively few prosecutions, but those we have had have been given wide publicity, and we usually pick out some case that drives home a lesson to the public.

I think the prosecution that did us the most real good was that of a prominent man in an Ohio city. The child in question was blinded by Ophthalmia Neonatorum and the case was discovered by a visiting nurse. In checking over the records the birth was found not reported. Of course, there is no connection between a blinded baby because of a doctor's neglect and a missing birth report because of the same factor, but the newspaper man did not make this fine dis-

tinction and it was simply a hammer with which we drove home the lesson to thousands of people.

The failure of a doctor to report the birth of a child whose father was afterwards killed while serving as a soldier in the Canadian army, was discovered by the application of the mother for a certified copy which would secure her a pension. Buried in the official files of the office, this appeal would have been of no value, but directly, from this publicity a very distinct case of its value is evident. This letter was shown to the recalcitrant doctor, who had boasted of his failure to report, and it so struck him that he had a special meeting of his County Medical Society called, and promised his fellow-practitioners that not only would he report, but that he would personally prosecute any member of the Society who failed to report. These men spent a great deal of time securing data and filing certificates of children born in the last six years—and, as a result of these activities, a women's club took up the work, with the result that a baby census of every child under six years of age was made in a good sized city and the work of securing the registration for every child up to six years is under way. We have succeeded in interesting various women's clubs, such as the Parent-Teachers' Association and the State Federation of Women's Clubs. These Clubs have given us services of incalculable value.

In a number of our counties a complete baby census has been made. As a result of this work the current registration of many counties has increased as high as 400 per cent, and in addition we are able to secure hundreds of certificates of children born in other years.

The appeal of an American Consul for a certificate for an American girl so that she could marry was so used by our Publicity Department that it did a tremendous amount of good. This girl was the daughter of a bandmaster in a United States army regiment stationed at Columbus. She had become lost to her family, which at this time consists of four sisters, living at various places in the country. This publicity not only reunited these sisters, but secured the birth certificate, necessary because of the suspicion of expatriation having arisen against this girl.

Another case was that of a young Austrian, born in an Ohio city some twenty-six years ago. Soon after his birth his parents moved to another state and died. At the outbreak of the war he was in Austria in a commercial capacity, and he was arrested as a military-service evader. He protested to our ambassador, but absolutely no trace could be obtained of his birth; so here we have an American citizen forced to serve in a foreign army and later forced to fight his own country because of his inability to produce a birth record. This case had a dramatic appeal and served to teach thousands the value of registration when proper use was made of it.

Our biggest opportunity is to pick out cases which have a wide personal appeal to a particular class, and inasmuch as they have a very decided value as news, publicity is easily secured. Cases are selected because of their personal appeal; *e. g.*, this latter case aroused the interest of our alien population. The mother's application for certificate for pension, the interest of dependents of soldiers, and specific cases illustrating the necessity of securing a certificate for allotments were also used.

The story of the young Ohio Jew who was caught in Russia at the outbreak of the war and whose privations while awaiting a certificate, reads like a novel, has an appeal to this race.

The young Lutheran caught in a foreign country at the outbreak of the war, and whose birth data was found in the records of an obscure Cincinnati church, brought the lesson home, especially to the members of this denomination.

The story of the inaccuracy of the physician in making out a death certificate for a member of a big fraternal order, causing months of delay in the settlement of his insurance, had a direct appeal, not only to this order but to every man carrying fraternal insurance.

Time is too limited to go further into details, but the big thing is to select cases that not only have a general, but an especial appeal.

Instead of pounding our physicians and arousing their animosity, we try to show them that they are amply repaid in the scientific value of our compilations for all the trouble they are put to. We reach them through our medical journals and our county societies. They are always glad to have a talk on the subject of vital statistics, and these discussions have been mutually helpful, as we have received many valuable suggestions from members of the profession. In this way a professional conscience can be aroused, and when you can show a man that he is in reality contributing something not only of personal interest, but of tremendous scientific value, you have secured his lasting coöperation.

The average doctor does not know his real debt to statistics, but when we can educate the public to the personal value to them of registration, we need never worry a moment about the doctor, for the public will educate him. Let an irate mother who discovers that her child is not registered, while her neighbor's child is, have a five minutes' seance with the doctor and it will do him more good than a dozen prosecutions.

Our mother's certificate plan did a great deal of good, but because of limited funds we had to discontinue it when the increase in postage rates was adopted. We are using two thousand infant welfare bulletins of the children's bureau per month, with very marked value. These are mailed through the "Frank" and are used in weak districts. Unfortunately, we can only secure about 20 per cent of our needs, but we are using them in lax communities with marked benefit. I think this is the most useful and best written bulletin our government issues.

We have established a system of what we call back registration that arouses a great deal of interest. We have those desiring a legal record make out a certificate, properly sworn to, which we file and index. People so registered become apostles of registration. While it takes considerable time to register and index these, we are amply repaid for it by the interest aroused.

While this work can be carried out by a state, I believe that it can be better carried out by our Federal government.

To those of us who have watched the trend of affairs in the government during the last few years and especially during the last few months, it is evident that our government has undergone a tremendous change. While this change has been so subtle that it was hardly noticeable in passing, yet when we compare what actually exists today with what existed yesterday, we can see its portent. I refer to the nationalization of our country. Yesterday we were not a nation; rather, we were a federation. And today we are a nation in the truest sense of the word. Only a few years ago we were torn by sectional, class, religious, industrial and many other interests. Today the fiery furnace of war has melted these various lines of cleavage and we find that our dream of nationalization

has come true; and it is not unreasonable to believe that the events of the immediate future will further solidify us.

Now, this tendency has a tremendous effect on our work and if advantage is taken of it, the registration system of our country will not be a series of isolated islands only partially in correlation, but will become a closely related, thoroughly coördinated and above all, an entirely efficient and effective organization.

Originally a state's rights supporter, the events of the last few years have convinced me that more effective and more efficient work can be done by a closer association or better supervision by our Federal government. Nationalization of our governmental and especially our administrative agencies is not coming—it is here. I am not driving at individual effort, whether it be of the Federal or the state, but I believe that the time has come when we must work out some plan of a closer coöperation in the activities of both. Because of conditions arising out of the military aspect of our government we must have complete registration and the public will not rest content with the more or less slipshod individualistic efforts of the past.

A certificate of birth or death has three phases: first, its value to the individual; second, its value to the state, and third, its value to the nation—and I place this last because a birth or death certificate's greatest value is to the nation.

The reason we have not a complete registration system is because there has never been a real need of it. You and I know its need, but neither the profession nor the laity did. Now, with all the multitude of reasons poignantly brought forth by this war, the public will demand it. Therefore, the whole problem is this: "Shall we continue to operate as islands, or should we have a centralization of this work by the Federal authorities?"

The Federal government, first of all, has the prestige—we, who have been acting as special agents, know how vastly more effective is the work done by John Smith, special agent, than by John Smith, state registrar. Since our Bureau began this system the improvement of the work has been very marked. In fact, we are practically working on current material, and I ascribe it entirely to the prestige which the "Special Agency" carries.

The Federal government has the machinery, and the adoption of the Federal Mother's Certificate will be an important step toward the desired Federal and State coöperation.

The time has come when complete work must be done and our model law, while it has served an admirable purpose, has outgrown its usefulness and I believe that some plan of nationalization will have to be worked out. Just what plan would be best, I am unprepared to say, but considering all angles, the most feasible and the one involving the least trouble to put into operation, would be a Federal law which would coalesce the various Federal agencies already existing, with the state systems now in operation.

◈

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horowitz and Mayo Tolman.

Physicians in Medical Corps.—At ten o'clock on the morning of November 11, the War Department discontinued the commissioning of physicians in the Medical Corps. This condition, in all probability, is permanent and no further consideration will be given applicants for a commission in the Medical Corps until further notice.

✠

Director of Pasteur Institute Retires.—Dr. Pierre Roux, associate and co-worker with Louis Pasteur, the founder of modern bacteriology, is about to retire as Director of the Pasteur Institute of Paris. He will be succeeded by Dr. A. C. Calmette, now Director of the Pasteur Institute at Lille. Dr. Calmette is an authority on tuberculosis.—*New York Times*, December 8, 1918.

(*M. P. H.*)

✠

Vaccine Treatment of Influenza.—The following recommendations, quoted by Sir Arthur Newsholme of the Local Government Board, London, are the result of a recent conference on influenza held by bacteriological experts in England.

It was agreed that inoculations with a suitable vaccine might be of value in controlling the incidence and severity of the epidemic. In preparing the vaccine for prophylactic use, different strains of B. influenzae, and the pneumococcus and streptococcus isolated from recent cases should be used. The vaccine should be sterilized at 55° C. for one half hour, and 0.5 per cent of carbolic acid should then be added as an antiseptic. It is desirable to give two doses of the vaccine at an interval of ten days. The first dose should contain 30 million influenza bacilli, 100 million pneumococci, and 40 million streptococci. The second dose should contain just twice the number of each species used in the first dose. A full dose may be given to all those above sixteen years of age. It is inadvisable to inoculate children less than three years old. For children from three to seven years, one fourth of the full dose may be given, and for children from seven to sixteen years, one half of the full dose. The reäction in every case should be very mild. Wherever possible it is desirable to carry out the inoculations before exposure. Inoculations should not be given to individuals having the disease or showing the symptoms of the disease.

When used for treatment the vaccine is likely to be of greatest service in subacute and chronic cases. The initial dose in these cases should be one fifth of the initial dose when the vaccine is used as a prophylactic. In severe cases of secondary bronchopneumonia, the vaccine should not be used.—*Medical Officer*, London, Nov. 9, 1918. (*M. P. H.*)

✠

Don't Shake—Salute.—Let society pull down the sentiment that keeps up hand shaking and insist on the salute instead. There can be little doubt but that hand shaking is responsible for the spread of much sickness. The nose and mouth may harbor untold numbers of disease-producing germs, influenza, pneumonia, diphtheria, scarlet fever and other infections, and the hands find their way to the face many times each day and each time they may gather myriads of bacteria to pass on to some one else with the next greeting.—*Bulletin Chicago School of Sanitary Inspection*, October 26, 1918.

(*M. T.*)

✠

Applications of Lessons of Military Sanitation to Peace Times.—At the annual convention of the Association of Life Insurance Presidents, held in New York on December 6, Major-General William C. Gorgas, through his proxy, Colonel W. D. Wrightson, said that one of the chief lessons to be derived from the war for sanitarians and those interested in protecting the public health was, that overcrowding favored the spread of disease, particularly diseases like pneumonia. According to General Gorgas it is unwise to crowd from 144 to 200 men in barracks. This was responsible for the spread of pneumonia after the measles epidemic of 1917 and the pneumonia resulting from influenza in 1918. In both of these epidemics the mortality rate was high. It is estimated that the death-rate from influenza in the army was five times as large as among the civil population of New York City. Instead of crowding the men together in large barracks, small huts, 20 by 20 feet in plan, capable of housing six men, are recommended. It was impossible to avoid overcrowding on board the transports since the military necessity was so great. This, however, aided in spreading disease. During the influenza epidemic, the Vaterland with 10,000 to 12,000 men on board lost 70 men from pneumonia on its trip to France, and 300 men were taken to hospitals at the port of debarkation. The remedy for overcrowding among the civil population rests in increasing the wages of laborers, so that they may be enabled to have better housing facilities.—*New York Times*, December 7, 1918. (*M. P. H.*)

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

Influenza.—Abstracts of foreign literature compiled by the British Medical Research Committee appeared in the *Jour. A. M. A.*, 71, 1573 (1918).

✻

Studies of Bovine Mastitis.—The principal sources of streptococcic infection, aside from clinical cases, are apparently normal cows which carry the virus in the udder. A milker may readily carry streptococci on his hands from an infected to an uninfected cow. The vaginæ of thirty-four of the sixty-four cows examined contained non-hemolytic streptococci. In no instance have hemolytic streptococci been isolated from the vagina.—F. S. Jones, *Jour. Exp. Med.*, 28, 735 (1918).

✻

Standardization of Antimeningococcic Serum.—Experiments were made for the purpose of testing the reaction of protection against infection as a measure of potency of antimeningococcic serum. The results of the experiments were extremely variable and bore no relation to the quality of the sera as determined by the period of immunization of the horses from which they were obtained, or the indications of efficiency based upon their employment in human cases of epidemic meningitis. The results also failed entirely to conform to the agglutination titer of the sera tested and to be affected by the different type forms of the meningococci. The authors regard the protective power for laboratory animals of the antimeningococcic serum as an unsuitable index of its value in human medicine and as inferior to the agglutination titer as a standard of potency.—H. L. Amoss and P, Marsh, *Jour. Exp. Med.*, 28, 779 (1918).

✻

A Plate Method for Isolating Anærobes.—Dilutions of the material to be plated are made in the usual way; melted deep agar tubes are inoculated and plates poured. The plates are immediately chilled and as soon as the agar sets, another deep tube of sterile agar is poured over the surface of each plate. The plates are again chilled to set the second layer of agar, and the surface of each is covered with a layer of melted paraffin, care being taken to have the paraffin completely cover the surface of the agar. The second tube of agar should be cooled to 42° C. before it is poured over the surface of the plate. Tetanus and gas bacilli grow well by this method.—G. F. Dick, *Jour. Inf. Dis.*, 23, 578 (1918).

Reading of Hydrogen Ion Concentration.—The author employs a mixture of China blue and rosolic acid as an indicator. The indicator can be added directly to media and permits easy, direct estimation of hydrogen ion concentration in the culture at all times. Heating has no effect.—J. Bronfenbrenner, *Jour. Med. Res.*, 39, 25 (1918).

✻

Simple Method for Blood Cultures.—The patient's blood diluted in a test tube of sterile water makes an excellent culture medium for a number of infections, at the same time furnishing the infecting organisms. In pneumococcus and streptococcus infections, the method compares quite favorably with other cultural procedures; and in positive cases the bacteriologic diagnosis can be made in nearly every instance from the primary culture in 24 hours. Thirty to 40 per cent is suggested as the optimum dilution if only one tube is made. If two tubes are made one is a 40 per cent dilution and the other 5 to 10 per cent.—J. G. Wurtz and S. W. Sappington, *Jour. Med. Res.*, 38, 371 (1918).

✻

Uric Acid Synthetic Medium for the Differentiation of B. Coli and B. Ærogenes.—The medium has the following composition:

Distilled water	1,000 cc.
Sodium chloride	5.0 gm.
Magnesium sulfate	0.2 gm.
Calcium chloride	0.1 gm.
Di-potassium-hydro-phosphate	1.0 gm.
Glycerol	30.0 gm.
Uric acid	0.5 gm.

In this medium B. ærogenes grew luxuriantly and soon produced a dense clouding. B. coli failed to develop and the tubes remained clear. Hypoxanthine hydrochloride, when substituted for uric acid, gave the same differentiation, although B. ærogenes appeared to grow less luxuriantly than in the uric acid medium.—St. A. Koser, *Jour. Inf. Dis.*, 23, 377 (1918).

✻

Demonstration of Pest Bacilli in Rat Cadavers.—As a substitute for bacteriologic methods a precipitin reaction is made with a physiologic saline extract of the organs of a suspected rat to determine the presence of the B. pestis.—A. Doll and Ch. Warner, *Z. Hyg.*, 84, 67 (1918); *Chem. Abst.*, 12, 2341 (1918).

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DEMOCRACY AND PUBLIC HEALTH ADMINISTRATION.*

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Address of the President, American Public Health Association, December 9, 1918.

I WISH to express to my colleagues, in the fullest degree, my appreciation of the very high compliment they have paid my country, and incidentally the great honor they have conferred on me, in electing me President of this association, and I take this opportunity to express my appreciation of the most valuable coöperation and assistance of the members of the Executive Committee, the Board of Directors, and our worthy Secretary. Unitedly, we have endeavored to visualize the future of the American Public Health Association.

As my subject indicates, I am going to depart from the well-trodden paths of presidential addresses. Presidential addresses are not very popular. They are not usually good drawing cards. The most outstanding exception to this, however, was the address delivered by President Wilson in April, 1917, when your nation declared war on Germany. That address was most highly appreciated by every intelligent individual in the Allied nations.

The fact that war has been foremost in our minds for over four years, even though the glorious consummation so devoutly hoped for has been attained, justifies, on this occasion, a brief reference to our allied relationship.

The conditions under which our nations entered this great conflict were practically the same. These were fittingly expressed by the Right Honorable Mr. Asquith, then Prime Minister of Great Britain, in an address to the British House of Commons, immediately after the declaration of war, in which he said, "No nation ever entered into any great controversy, and this is the greatest that history will ever record, with a clearer conscience and a stronger conviction that it was fighting, not for aggression, not for personal gain, but in defence of principle, the maintenance of which is vital to the civilization of the world." When the German Imperial Chancellor learned of Great Britain's intention, he, in a rage, said, "Just for one word 'neutrality,' just for a scrap of paper, Great Britain is going to make war on a kindred nation." "I wish you to understand," replied the British Ambassador, "it is a matter of life and death, for the honor of Great Britain, that she should keep her solemn engagement to do her utmost to defend Belgium's neutrality if attacked." A Scrap of Paper!

* Reprints of this address by Doctor Hastings, when completed next month, may be secured by addresssing the office of the JOURNAL.

The Imperial Chancellor could not understand that when Great Britain puts her name to a treaty, that she signs it with blood. The German Chancellor well understood that war is hell, but he found it convenient to forget what Dante taught, that the very heart of hell is reserved for those who are traitors to their friends.

When the United States entered this war, she did so in defence of principles. When the United States signs a treaty, she too signs it with blood. I think it was Victor Hugo who said, "A fixed principle is like a fixed star—the darker the night, the brighter it shines."

The reason for this similarity of action of the British Empire and the United States is obvious. The acorns produced by the stalwart oaks of the British Isles, carefully conveyed across the Atlantic and planted on the hillsides of the New England States, removed from the shadow and protecting influences of the mother oak and consequently forced to stand the various tempests and vicissitudes of life, developed the kind of man timber that would not submit to autocratic dictates and coercion, but revolted. In doing so, you built more wisely than you knew, for by that Revolutionary war, you made it possible for the remaining dominions of the Empire beyond the seas to obtain by evolution what you then obtained by revolution. Unfortunately one hears the War of Independence only too frequently referred to as "the war between the United States and Great Britain," instead of "Great Britain's civil war," British fighting against British; a family quarrel.

The conflict that we have just passed through has afforded an opportunity for us to better understand each other.

And now that, in the phraseology of Shakespeare, the black cloud of war that has been lowering upon our housetops for the past four years or more has been dispersed, and that our bruised arms have been once more (and I hope for all time), hung up for monuments, and our stern alarms changed to merry meetings, it remains for our association to play its part in medical demobilization and in the enlisting of all physicians who have been specially trained in preventive medicine and also all public health nurses in our mobilization to combat the invisible foes of our race.

For the next three days you will have presented to you, and hear discussed, every phase of public health work, especially in connection with the epidemic that we have just passed through, the future of the American Public Health Association and the future of the American Public Health Service. Consequently, I am going to address you for a few minutes on "Democracy and Public Health." I am going to present a few plain facts and ask you to consider with me their application. The time has come when if we are going to give our boys the democracy that they have been fighting for, we must face the facts and prepare to deliver the goods.

The True Democracy.

Modern public health administration, as I see it, constitutes the very quarry from which the material may be obtained to construct the chief corner-stones of true democracy. By "true democracy" I mean the "Lincoln Brand" of democracy, the brand of democracy that means liberty and justice for all, and makes possible for every citizen the development and maintenance of a sound mind in a sound body. This is the democracy that our boys have been fighting for. The democracy that, if we are going to keep faith with our boys, we must be prepared to deliver.

Under our present public health administrations, we require people to con-

form to certain regulations. We endeavor to teach them how to live. We tell them that plenty of nutritious food, fresh air and sunshine are the best and only reliable remedies for tuberculosis and other wasting diseases. We insist on mothers nursing their babes, assuring them that by doing so they give their infants ten chances to one that they would have if artificially fed. But what are we doing to make these possible?

No democracy existing today affords relief for these conditions except in a fragmentary way, but, thank God, there is evidence on all sides of an awakening of the social conscience to the appalling social conditions of our times, with poverty on the one hand and luxurious idleness on the other. What our nations require is a fitter race, and what every individual is entitled to is the development of the best, mental and physical, of which he is capable; and no government is worthy of being called a democracy that does not make this possible. In the democracies of today this is obtainable only for the few, while tens of millions are toiling for a wage which denies them this right.

As General Gorgas said a few years ago, in an address delivered in Cincinnati, "If I were given only one means by which to improve the health of the people on this continent, I would choose for that one, the doubling of the revenue of the wage earner." This of course, to be efficient, would require to be accompanied by a well-organized educational campaign along the lines of thrift.

Is it not time for introspection? Is it not time that we were doing a little political and social stock-taking of our so-called democracies to see if they measure up?

The world has been talking more and thinking more about democracy in the past four years than in centuries before inasmuch as the great struggle that we have just passed through has been for the most part for the democratizing of the world; and yet how many of us have taken the trouble to determine what real democracy means?

When one considers the heterogeneous character, however, as regards race, language and traditions of the population of this great republic, one is forced to conclude that your experiment in democracy has been fairly successful, but like our crowned democracy, it is badly in need of remoulding and must go into the melting pot with the other so-called democracies of the world. We must not be content with anything but the sterling article, the democracy that will stand the acid test. That is what our boys have been fighting for.

The Origin of Democracy.

Democracy is becoming so popular that all are claiming its nativity. Some claim that it was born and cradled on the Mayflower. Others that it was born in the manger at Bethlehem of Judea. Others that it first saw the light in Great Britain when John was forced to sign the Magna Charta at Runnymede, while ancient historians give credit for its conception and nativity to Greece and Rome, and I have no doubt that the Israelites would claim that previous to the time of Saul, over 1000 years B. C., that their government of theocracy, which incorporated social and religious societies, constituted the true democracy.

It must be apparent, however, that the efficiency of any democracy depends on the intelligence of the people that go to compose it.

We do not find in the democracy of the United States or the crowned democracy of Great Britain, or any other democracy that exists today, "liberty and justice for all," or even the political principle of the "government of the people, by the people

and for the people," but rather the government of the people, by the money, for the few. Real democracy does not recognize aristocracy of birth or aristocracy of wealth, but it does recognize aristocracy of worth.

As Napoleon the First expressed it, "The French Revolution meant a clear pathway for merit of whatever kind." This means giving every man a chance.

In describing democracy, James Russell Lowell said, "I would say that it is that form of society, no matter what the political classification, in which every man has a chance and knows that he has it." "If a man can climb, and feels himself encouraged to climb from a coal pit to the highest position for which he is fitted, he can well afford to be indifferent as to what name is given to the government that makes that possible," for he sees in it liberty and justice.

Democracy Does Not Mean Equality of Men, But of Opportunity.

No form of government, however, can make all men equal. The laws of eugenics make this impossible, but true democracy gives every man a chance. It simply means doing unto others as you would they should do to you. It has taken nearly 2,000 years for the world to properly grasp and turn to practical account the democracy of Christ, which means the brotherhood of man and the fatherhood of God.

Our nations have for the past four years been pouring out the best of their blood, until practically every foot of land in Northern France and Flanders has been baptized and garlands of mourning have been thrown round the whole world. We must see to it then that, for this sacrifice, when our boys have returned, they are not handed an alloy, but the sterling article, the democracy for which they fought and to which they are entitled.

Lincoln obtained his viewpoint when in his teens. Standing in the slave market of New Orleans, penniless as he was, but with a princely heart, he was deeply touched when he saw human flesh and blood bartered at the auction block. Although this was more than three decades before he entered the White House, as he left that scene he was overheard to say, "If ever I get a chance to hit that thing, by the Eternal God, I will hit it hard." This was the decision, this was the choice, of the then young deck-hand on the flat-bottomed skiff on the Mississippi. Lincoln knew that slavery was incompatible with democracy.

Every nation that permits people to remain under the fetters of preventable disease, and permits social conditions to exist that make it impossible for them to be properly fed, clothed and housed, so as to maintain a high degree of resistance and physical fitness, and that endorses a wage that does not afford sufficient revenue for the home, a revenue that will make possible the development of a sound mind and body, is trampling a primary principle of democracy under its feet.

Will any of the democracies of today stand the test? Let us see how far our democracies measure up.

First let us examine the crowned democracy of Great Britain. It is alleged that 30,000 people in England own and control over 98 per cent of the land and capital of that island. Just previous to the war, it was estimated that 700,000 men in England were constantly out of work and 800,000 were practically paupers. Of every 1,000 persons who die in old England, over 900 leave no property behind. Is this democracy? Can we see in this any claim for freedom and justice?

The Manchester *Guardian* recently drew attention to the fact that Great Britain, just previous to the war, boasted of 79 multi-millionaires, with 125 million

dollars or more to their credit; 68 with well on to 100 millions to their credit and 45 with between 75 and 100 million dollars to their credit, and as the writer expresses it, "On the more poverty-stricken scale, with only 50 millions, there were 19," and then states that "after this penurial zone is reached, we are quite willing to fall out of the running and let other nations have it."

In an address delivered by the Bishop of London, just three years before the war, at a church Congress, on "The Duty of the Church Today," when referring to the unequal distribution of wealth and the appalling amount of poverty, and to those just living on the border line—not living, only existing—he said that if a procession could be organized of these people in old London, it would take a fortnight to get it out, and before the last couple left London, the first would be in Edinburgh. "We cannot rest, therefore," said the Bishop, "until this irregular distribution is righted. We cannot rest until there is equality of opportunity for as many as possible." And yet the government that makes these conditions possible, we have been styling a crowned democracy.

Coming nearer Home.

We are told by students of political economy that in the United States and Canada, less than one-half of one per cent of the people own and control nine-tenths of the entire wealth. It is estimated that this republic possesses more than one quarter of the entire wealth of the world. And yet on this continent it is alleged that 3,000,000 children go to school either without breakfast or with improper or insufficient food for their breakfast. At the same time we find in this country thirteen families with an annual income ranging from $2,500,000 to $60,000,000, and this is what we call democracy. In the United States and Canada over 10,000,000 people are in a state of chronic poverty, and this is apparently on the increase. There are constantly 4,000,000 paupers. Ninety-nine per cent of the wage-earners in our cities die without leaving any property, and we call this democracy. Is it not man's inhumanity to man?

If we take the Bishop of London's illustration and apply it to our countries, we find that if it were possible to form a procession of those who are in a state of more or less daily privation, organized at Washington, it would take between three and four months to get the procession out of the city. It would reach from Washington to New Orleans, from New Orleans to San Francisco and from San Francisco to Chicago, and from Chicago back to Washington, and before half this melancholy multitude had left Washington, the first couple would have entered Chicago.

What are we doing to ameliorate these conditions? Doling out colossal sums, yea millions, yearly as charity. And what has it done? As someone has said, "It has merely anaesthetized or benumbed the poor, lest they cry too loud." Should not the word "charity" as we use it be expunged from our language and the word "justice" substituted? These are the conditions we find in our so-called Christian nations.

As Sir Henry Drummond expressed it: "In the final reckoning, it is the Son of Man before whom the nations of the world will be gathered. It is in the presence of humanity that we shall be charged and the spectacle itself, the mere sight of it, will silently judge each one. Those will be there whom we have met and helped; there the unpitied multitude whom we neglected or despised. No other witness need be summoned. No other charge than lovelessness shall be preferred."

"Be not deceived," says Drummond, "the words which all of us shall one day hear sounded are, not of theology, but of life; not of church and saints, but of the hungry and the poor; not of creeds and doctrines, but of shelter and clothing; and a cup of cold water in the name of Him who has said, 'Inasmuch.'" "But, thank God," said Drummond, "we are coming nearer to the world's needs, and we know better, by a hair's breadth, what real religion is, what God is, and who Christ is"—the great Exponent of Democracy, who preached practical Christianity, the brotherhood of man.

Some seem to think that socialism is the remedy. I know of no form of socialism that does not contain sufficient anarchy to condemn it. True democracy is socialism purged of its anarchy and other objectionable features. If the autocracy of Germany should swing to the other extreme of anarchy, the last state of that nation would be worse than the first. The socialisms and Bolshevisms of today must go into the melting pot with the so-called democracies, from which we may expect to arise the new democracy in which every man will have a chance and know that he has it.

The war has demonstrated, as never before, the value of man power, whether in war or peace. Every nation has been expecting every man to do his duty, and now that the war is over, every man will expect every nation to do its duty. He will expect a democracy that will make possible the development of a sound mind in a sound body, both for himself and his offsprings, and will make for them a clear pathway for merit whatever it may be, and that they will discover in it that they have a chance to climb to the highest position.

The efficient solution of the social problems of our homes constitutes the very foundation of public health administration, inasmuch as the efficient care and nutrition of the expectant mother and the children is governed by the revenue of the home. Health is a prerequisite to the enjoyment of life. We do not only want life, but we want it more abundantly. As Farrand has expressed it: "To make a country really safe for democracy, we must first make it healthy." We have heard much about making the world safe for democracy, but have we a democracy that is safe for the world? This must be assured.

The brain and brawn of the people represent our organized national capital. Through the steady advance of our industrialism and the urbanization of our people, their national worth has become more and more apparent. Consequently, in some of the more enlightened communities, the expectant mother now receives almost as much consideration as the Holstein cow and the Berkshire sow, and the infant almost as much consideration as the calf and the pig, not because they are human, not because they are made in the image of their Maker, but because of their national worth, because man power is now being recognized as the nation's greatest asset. Nations have been awakened from a national somnolence so profound that it has required millions, yea billions, of tons of explosives to arouse them.

The conclusion of the Address of Dr. Hastings will appear in the March issue of the JOURNAL.

THE FUTURE OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

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Address before the General Sessions, American Public Health Association, at Chicago, Ill., December 10, 1918.

LATE on the afternoon of November 1, 1918, a wreck occurred on the Brooklyn Rapid Transit Railway of New York City, which resulted in the death of approximately one hundred people. Before midnight the mayor of the city, the commissioner of charities and other city officials had visited the scene of the wreck. Several of them remained there during the entire night aiding in the rescue of victims and in the removal of the bodies of those who had been killed. On the following day, the district attorney of the city and the United States district attorney began investigations to ascertain the causes of the accident. The mayor of the city decided to sit as a committing magistrate in the John Doe Proceedings,—a procedure almost unparalleled in the history of the city. Many of the newspapers, in reporting the wreck, had headlines as large as those which they employed in announcing the Peace Armistice. Column after column was given up to a minute and detailed account of what had happened together with stories of survivors and others who had been eyewitnesses.

On the same day, November 1, 1918, there occurred in the City of New York 548 deaths from influenza and pneumonia resulting from influenza. On the previous day, there were 598 deaths. During the preceding week there were 5,036 deaths from the same causes. From the time the influenza epidemic began, late in September, until the day in question, there were 170 times as many deaths from influenza and pneumonia as occurred in the railroad wreck in Brooklyn. There is no record that, with the exception of the health officer, city officials were particularly concerned with the alarming number of deaths which occurred. Neither the local nor the Federal district attorney deemed the matter worthy of inquiry. On November 1, even this large number of deaths daily had become so commonplace that only incidental reference was made thereto in the columns of the press. At no time during the epidemic were there the glaring headlines so characteristic of a sensational and dramatic happening.

The reasons for the drastic action on the part of the city officials in connection with the railway wreck are obvious. The horror of the scene roused the determination of all who saw it to prevent a recurrence. The wreck itself was so dramatic that the public awoke to the need of going to any extremes, even of new legislation, to make certain that such a thing could not happen again. The epidemic, on the other hand, notwithstanding its much greater toll of deaths, had few dramatic features. It came on slowly and insidiously. While the experience of other cities indicated what might be expected in New York, there was always the belief that the city might escape. Only when the epidemic began to reach its crest was it recognized that a much worse horror than the Brooklyn wreck had its grip on the city. What the epidemic meant to New York in loss of wages, hospital and other charges, funeral expenses and payment of death claims, has never been estimated. Now

that the epidemic is over, we are in danger of settling down in our former smug contentment and of permitting things to take their usual course.

I am citing the New York situation, not because it is exceptional, but because it is probably symptomatic of what happened throughout the United States. Water rises no higher than its source. The attitude of officials and of the press reflected in a large measure the attitude of the public. While a feeling of dread spread throughout the community, the epidemic generally was accepted in a spirit of resignation and with a fatalistic philosophy best indicated by the old Italian proverb, "Che sara sara," "what will be, will be."

There must be something fundamentally and inherently wrong in our methods of health administration which have perpetuated such an apparent condition of apathy and indifference to death by disease. Human nature has not changed. Death by accident, murder, suicide and on the battle field can arouse us to the highest emotional pitch. Cholera, smallpox and yellow fever have, possibly because of their horrible developments, been sufficiently fear-inspiring to provoke extraordinary measures. I doubt, however, whether they occasion the same sense of horror as was produced by the cruel slaughter of Belgian infants. It is interesting to note that during the week of November 26, there were twice as many deaths of babies under one year of age in New York, and five times as many in Philadelphia as during the corresponding week of the preceding year. It is quite probable that during the epidemic upwards of ten thousand babies in the United States died as a result of lack of care and attention. What would we have said had we learned that during the months of September and October 10,000 infants had been slaughtered by the Hun?

Why is there this indifference and apathy on the part of the public to disease and its results? Is it because we have not succeeded in educating the people to the realization that health is their greatest asset? Are we willing to pay the price to secure this asset for ourselves and for our posterity? Do health and the prevention of disease bear the same weight and relation to our daily life as do other incidents of far less importance? The classic instance of the amounts we spend annually for the care of cattle as compared with the amount spent for the preservation of human life has been cited too frequently to be worthy of repetition here. I mention it merely to bring out certain other facts which I have had occasion to investigate quite recently.

The measure of the importance which a community lays upon its health is possibly best evidenced by the amount which it is willing to pay, or has been educated to pay, for the services of its health officer. To ascertain this amount, I recently sent a questionnaire to 786 health officials in the United States and Canada. Replies were received from 417. These have been recorded and tabulated, and the results appended to this paper. I shall attempt to do no more here than to present some of the more important summaries.

War-time conditions have, as we know, brought about not only an increase in the cost of living, but an increase in wages. The average competent stenographer can readily earn $25 per week. A good butcher probably obtains more. In the skilled industries, wages above this amount are anything but infrequent. None of these trades require unusual training nor do they carry with them any important responsibilities. Compared with these, what tale is told by the salaries, or rather wages, paid to the aver-

age health officer? Of the 417 men who reported, 60 per cent receive under $25 per week. Of the total, only 36.7 per cent are full-time health officers and of these, 25 per cent receive less than $25 per week; 63.3 per cent are part-time officers and 80 per cent of these receive under $25 per week. The average salary for the entire group was $1383 per annum. The minimum salary was $50 and the maximum salary $7500. The minimum and maximum salaries for cities having a population of 75,000 to 100,000 and in cities having a population of 100,000 to 250,000 are the same, the minimum being $1500 and the maximum $4000. Apparently in these two groups there are no standards of salary based upon increasing size of cities and corresponding increase in duties and responsibilities.

If we study the data by geographic region, there are even more interesting anomalies. Some of our preconceived notions are overturned. It is not in the older, and presumably more highly developed sections of the United States, that we find either the higher rate of pay or the larger percentage of full-time men. The South Atlantic States rank first and show an average salary per annum of $3156, and 62 per cent of full-time officers. As compared with this, the East North Central States show an average salary of $1270 per annum, and 26 per cent full-time men. Further details may be gained from the tables.

The apathy and indifference of communities is evidenced in still another fashion. Practically every city in the United States of any size today requires that its public school teachers should have had ample preliminary training and has recognized this training by placing its teachers under Civil Service so that continuity of effort and permanency of position can be assured. The returns to the questionnaire show that only 86 out of 417 officers were appointed under Civil Service rule. Of these only 40 were appointed for indefinite terms, based on good conduct. Fifty per cent of all the men were appointed for less than two years. In cities of over 250,000 population, in which the complexities of the health problem in particular demand continuity of thought and action, only 10 out of 22 officers were appointed for indefinite terms.

These illustrations could be multiplied, but they would not bear more strongly on the point at issue. Anyone who is interested will find material for study in the tables submitted. I have mentioned the fact, not so much to call attention to existing conditions, as to indicate what must be the future of public health work in the United States and in particular, what must be the future trend of the American Public Health Association.

It would be idle to discuss here or to attempt to ascertain who is responsible for the fact that health work is still at such a low standard in many communities. Indeed, there apparently are no standards. If the data submitted are of any value, they indicate that there is apparently little relation between the size of the community and its appropriation for health administration, judging the latter by the salary paid to the administrative head. If these salaries are indicative of the total appropriation for health work, the statement may probably safely be made that many cities still lack facilities for modern public health work, whose fundamental axiom is prevention of disease. There is probably still too much of the old idea prevailing that the health officer's functions are primarily the removal of nuisances and inspection of slaughter houses, pig sties and garbage disposal.

What of the American Public Health

Association? What of its future? If I read the signs of the times correctly, the association has come to the parting of the ways. It has a glorious history of fifty years. Its members paved the way for the remarkable work that has been done in the United States, in Canada and in Cuba for eradication of preventable diseases such as cholera, yellow fever, etc. That these men gained their inspiration through contact with the association is indisputable. On the other hand, much of the work which many of these men, such as Weed, Gorgas and others have done has been largely as individuals and their glory and achievement have been reflected to the association. If we are to continue and to grow, we must not be satisfied with past achievements or rest content with the fame of members or of committees. We must go ahead. To stand still means to retrograde. The war has brought us new problems which we must face. These affect not only our returning army and navy, but our civilian population at home. If the association is to function in the way it should, it will not be sufficient for it merely to hold annual meetings and to appoint interim committees for study and research. We must become a propagandist body, working day in and day out through properly constituted machinery and officials to carry the doctrine of preventive medicine into every city and town.

I take it you will agree with me that if this proposition of becoming a propagandist society be approved, the first duty of the association lies in improving the status of local and county health officers. Their present status is best indicated by the data which I have submitted. Communities must learn that the position of health officer is of equal, if not of greater importance and dignity than that of any other official. Upon the physical health of the community depend its mental and moral health. Health work must be dignified commensurately with its importance. Health administration can no longer be the football of politicians. To attract the best men with training and experience, positions must offer permanency of tenure and appropriations which will permit of constructive and intelligent activity. In short, the association must stand behind the health officer. It must be his prop and his support. Its representatives should be at his disposal to aid and to guide him if he requests it.

We probably have not fully recognized the remarkable powers which are vested as a rule in a local health officer. In addition to his general activities, he has in most communities, in emergencies, the right to exercise very distinct police powers. He may remove an individual from his home if he is a menace to the public health. This has often been done in smallpox epidemics and within the last few years this power has been applied to cases of tuberculosis. He may, as has been shown during the recent epidemic, close theaters and public schools, and exercise functions which closely affect the personal liberties of citizens. It is for this reason that public health administration can not be undertaken by private agencies, since the health officer may not delegate his powers to others. Whatever movements may originate in any community for improving public health conditions must, without doubt, have the hearty coöperation of the local health officer if they are to be successful. Such noteworthy movements should preferably originate with the local health official and be under his guidance and direction.

It is along this line of work that the American Public Health Association can be of inestimable value to the local health officer. If the association be-

lieves this to be a part of its work, I can see the time coming in the very near future when the association shall have field secretaries, prepared upon request of the local health officer, to visit his community and assist him in any campaign he may have in contemplation. These secretaries should be able, out of their larger experience, to aid the health officer in building up a constructive public opinion, to secure necessary ordinances and legislation, to arouse a community spirit which will demand appropriations from local and state governing boards and legislatures adequate for the equipment of modern health plants, including laboratories, hospitals, clinics and research departments. They will help in making the positions of health officers safe and secure. Their activities will include the effort to dignify the position of the health administrator, to secure him an adequate wage so that he may give his entire time to the improvement of community health. The doctrine of these field secretaries would not be a negative one. It would mean more than treatment and care of disease. It would have a distinctive, positive side; the eradication of sickness and the creation of buoyant health from infancy to old age.

And yet this is but the narrower phase of what the association should undertake. If there is apathy and indifference to health conditions, if the public is not awake to its health needs, the fault lies not entirely at its doors. Possibly we too have our shortcomings. Possibly we too have not yet learned the lesson or the method of bringing home to every hamlet and to every citizen those fundamental considerations which make for better and longer living. Public health education is still in its infancy. We must learn how to make our public visualize health. We must dramatize it, make it concrete. The stress heretofore has been laid upon illness. In the future, the universality of health must be emphasized. To this end, a standardized public health literature for popular use must be created, popular methods of instruction must be originated. The appeal, in whatever fashion it may be made, must be so untechnical and yet so certain that it will be convincing. Here, too, the health officer will need our help. Frequently he had not the opportunity of becoming conversant with modern current thought and research. We must bring to him the implements and the tools which he needs; the studies of our scientists and the products of our laboratories. We must make him efficient so that both we and his community may sound his praises.

Can this be done? Can it be done with our present organization? To the first of these questions I answer "yes," and to the latter, "no." The budget of our association is inadequate even for our present activities. This has been repeatedly dwelt upon at these meetings. The condition of the association's finances has been brought to your notice in other ways. I need not dwell upon it here. Suffice to say that our present budget of $20,000 is utterly insufficient for our purposes if such an extended program is to be carried out. We should have a minimum of $50,000 per annum. In the past four years, we have grown accustomed to think in terms of billions. If the health of the community is to be protected properly and adequately, we must get away from our habit of thinking in terms of thousands. Millions will be needed in the next few years to carry out the program of the United States Public Health Service. It is gratifying to report at this time the close and sympathetic coöperation which has been established between the service and the association so that they may work together each in its own field and sphere of activity with the

common purpose of improving health conditions everywhere.

I am sufficient of an optimist to believe that if we whole-heartedly determine to go ahead, the means can be found for a much more extended program than we have had in the past. This is not a question of materials but of human life. As such it can be made to interest one and all if only the proper presentation is made. When we can dramatize our work, when we can present a program which on its face will prove the possibilities of disease prevention and life extension, we can interest not dozens, but hundreds of individuals and corporations to support our movement. It has already been demonstrated that fraternal orders, life insurance companies and industrial corporations, to whom life extension is of vital and prime consideration, can be made to see the reasonableness of our program and to further our purposes through their financial aid. All we need is the will to go ahead; to develop a positive program, to work out methods and plans which shall have permanency and continuity. Most of all, we need the active interest and coöperation, not merely of the few members of the executive committee, but of each and every member of the association; coöperation which will make him a missionary, which will induce him in and out of season to preach our gospel, to carry it home with him and to spread it in the community where he abides.

There has been no time in the career of this great organization when its opportunities have been so brilliant as at present. The world has been in revolution. A return to the old order of things is impossible. If we are to move along in the new order, which, unless all signs fail, will be a bigger and a better order, we too, must enter the era of reconstruction and reorganization. Let us take up our task joyously, whole-heartedly, enthusiastically in the realization that there lies in this association, with its splendid record of the past, even greater possibilities and responsibilities in the future. If we do this, many of us may live to see the day when the American Public Health Association will be recognized in every part of America as the dominant organization making for the greatest of our national assets, long and efficient health.

TABLE 4.

Number and Percentage of All Health Officers and of Health Officers Appointed Under Civil Service Rules, with Terms of Office as Classified Below.

Term of Office	All Health Officers		Health Officers Appointed under Civil Service Rules	
	No.	Per Cent.	No.	Per Cent.
Total	417	100.0	86	100.0
1-year term	119	28.5	11	12.8
2-year term	92	22.1	7	8.1
3-year term	21	5.0	1	1.2
4-year term	75	18.0	24	27.9
5-year term	4	1.0	....	...
Indefinite term, "good conduct"	101	24.2	40	46.5
Unspecified	5	1.1	3	3.5

TABLE 5.

Number and Percentage of Health Officers Appointed Under Civil Service Rules.

(a) BY SIZE OF CITY			(b) BY GEOGRAPHIC REGION		
Size of City	No.	Per Cent. in Specified Class under Civil Service	Geographic Region	No.	Per Cent. in Specified Class under Civil Service
Total	86	20.6	Total	86	20.6
Under 25,000	45	16.9	New England	13	25.5
			Middle Atlantic	47	44.3
25,000 to 50,000	19	25.7	East North Central	16	13.9
			West North Central	2	4.2
50,000 to 75,000	8	38.1	South Atlantic	3	10.3
			East South Central	1	10.0
75,000 to 100,000	3	25.0	West South Central	1	4.5
			Mountain	1	6.3
100,000 to 250,000	5	22.7	Pacific	2	10.0
250,000 and over	6	27.3			

The Future of the American Public Health Association

By LEE K. FRANKEL, PH.D.

Tables on Health Administration Compiled from Data Submitted by Health Officers

TABLE 1.

Number and Percentage of Health Officers on Part and Full Time Basis, in Specified Class of City, Receiving Annual Salaries as Classified Below.

Salary Class	All Cities		Full Time Officers		Part Time Officers		Under 25,000		25,000 to 50,000		50,000 to 75,000		75,000 to 100,000		100,000 to 250,000		250,000 and Over	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Total	417	100.0	153	100.0	264	100.0	266	100.0	74	100.0	21	100.0	12	100.0	22	100.0	22	100.0
No salary	7	1.7	....	....	7	2.7	7	2.6	....	....	....	....	....	....	....	....	....	....
$ 0 to $ 99	5	1.2	3	2.0	2	.8	4	1.5	1	1.4	....	....	....	....	....	....	....	....
100 to 199	14	3.4	....	....	14	5.3	14	5.3	....	....	....	....	....	....	....	....	....	....
200 to 299	15	3.6	....	....	15	5.7	14	5.3	1	1.4	....	....	....	....	....	....	....	....
300 to 399	13	3.1	....	....	13	4.9	12	4.5	1	1.4	....	....	....	....	....	....	....	....
400 to 499	18	4.3	2	1.3	16	6.1	17	6.4	1	1.4	....	....	....	....	....	....	....	....
500 to 749	72	17.3	6	3.9	66	25.0	66	24.8	6	8.1	....	....	....	....	....	....	....	....
750 to 999	38	9.1	9	5.9	29	11.0	35	13.2	3	4.1	....	....	....	....	....	....	....	....
1,000 to 1,249	65	15.6	18	11.8	47	17.8	43	16.2	17	23.0	5	23.8	....	....	....	....	....	....
1,250 to 1,499	9	2.2	6	3.9	3	1.1	5	1.9	2	2.7	2	9.5	....	....	....	....	....	....
1,500 to 1,999	51	12.2	31	20.3	20	7.6	21	7.9	19	25.7	6	28.6	2	16.7	3	13.6	....	....
2,000 to 2,499	25	6.0	15	9.8	10	3.8	6	2.3	9	12.2	4	19.0	3	25.0	3	13.6	....	....
2,500 to 2,999	19	4.6	15	9.8	4	1.5	7	2.6	5	6.8	2	9.5	1	8.3	4	18.2	....	....
3,000 and over	54	12.9	47	30.7	7	2.7	4	1.5	9	12.2	2	9.5	5	41.7	12	54.5	22	100.0
Unspecified	12	2.9	1	.7	11	4.2	11	4.1	....	....	....	....	1	8.3	....	....	....	....

TABLE 2.

Number and Percentage of Health Officers on Part and Full Time Basis, by Geographic Region, Receiving Annual Salaries as Classified Below.

Salary Class	All Cities		New England		Middle Atlantic		East North Central		West North Central		South Atlantic		East South Central		West South Central		Mountain		Pacific	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Total	417	100.0	51	100.0	106	100.0	115	100.0	48	100.0	29	100.0	10	100.0	22	100.0	16	100.0	20	100.0
No salary	7	1.7	1	2.0	2	1.9	1	.9	1	2.1	1	3.4	..	....	..	....	1	6.3	..	....
$ 0 to $ 99	5	1.2	..	....	2	1.9	3	2.6	..	....	..	....	..	....	..	....	..	....	..	....
100 to 199	14	3.4	5	9.8	1	.9	5	4.3	2	4.2	1	3.4	..	....	..	....	..	....	..	....
200 to 299	15	3.6	3	5.9	1	.9	6	5.2	4	8.3	1	3.4	..	....	..	....	..	....	..	....
300 to 399	13	3.1	1	2.0	..	....	9	7.8	2	4.2	..	....	..	....	..	....	1	6.3	..	....
400 to 499	18	4.3	2	3.9	1	.9	8	7.0	4	8.3	1	3.4	..	....	1	4.5	..	....	1	5.0
500 to 749	72	17.3	8	15.7	11	10.4	23	20.0	10	20.8	1	3.4	4	40.0	5	22.7	4	25.0	6	30.0
750 to 999	38	9.1	2	3.9	11	10.4	10	8.7	4	8.3	2	6.9	1	10.0	7	31.8	..	....	1	5.0
1,000 to 1,249	65	15.6	5	9.8	29	27.4	16	13.9	5	10.4	2	6.9	1	10.0	2	9.1	3	18.8	2	10.0
1,250 to 1,499	9	2.2	2	3.9	2	1.9	1	.9	2	4.2	1	3.4	1	10.0	..	....	..	....	..	....
1,500 to 1,999	51	12.2	10	19.6	19	17.9	6	5.2	5	10.4	4	13.8	..	....	2	9.1	2	12.5	3	15.0
2,000 to 2,499	25	6.0	4	7.8	11	10.4	3	2.6	1	2.1	2	6.9	..	....	2	9.1	1	6.3	2	10.0
2,500 to 2,999	19	4.6	3	5.9	5	4.7	7	6.1	..	....	2	6.9	..	....	1	4.5	..	....	..	....
3,000 and over	54	12.9	3	5.9	10	9.4	13	11.3	5	10.4	11	37.9	3	30.0	2	9.1	2	12.5	5	25.0
Unspecified	12	2.9	2	3.9	1	.9	4	3.5	3	6.3	..	....	..	....	..	....	2	12.5		....

TABLE 3.

Number and Percentage of Health Officers on Part and Full Time Basis.

(a) BY SIZE OF CITY					(b) BY GEOGRAPHIC REGION				
Size of City	Part-time Officers		Full-time Officers		Geographic Region	Part-time Officers		Full-time Officers	
	No.	Per Cent.	No.	Per Cent.		No.	Per Cent.	No.	Per Cent.
Total	264	63.3	153	36.7	Total	264	63.3	153	36.7
Under 25,000	196	73.7	70	26.3	New England	27	52.9	24	47.1
					Middle Atlantic	53	50.0	53	50.0
25,000 to 50,000	35	47.3	39	52.7	East North Central	85	73.9	30	26.0
					West North Central	33	68.7	15	31.3
50,000 to 75,000	16	76.2	5	23.8	South Atlantic	11	37.9	18	62.1
					East South Central	8	80.0	2	20.0
75,000 to 100,000	7	58.3	5	41.7	West South Central	19	86.4	3	13.6
					Mountain	14	87.5	2	12.5
100,000 to 250,000	9	40.9	13	59.1	Pacific	14	70.0	6	30.0
250,000 and over	1	4.5	21	95.5					

TABLE 6.

Number and Percentage of Health Officers with Public Health Training.

(a) BY SIZE OF CITY									(b) BY GEOGRAPHIC REGION								
Size of City	PUBLIC HEALTH TRAINING REQUIRED				NO PUBLIC HEALTH TRAINING REQUIRED				Geographic Region	PUBLIC HEALTH TRAINING REQUIRED				NO PUBLIC HEALTH TRAINING REQUIRED			
	Physician		Non-physician		Physician		Non-physician			Physician		Non-physician		Physician		Non-physician	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.		No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Total	101	24.2	58	13.9	170	40.8	88	21.1	Total	101	24.2	58	13.9	170	40.8	88	21.1
Under 25,000	56	21.1	32	12.0	116	43.6	62	23.3	New England	2	3.9	14	27.5	8	15.7	27	52.9
25,000 to 50,000	19	25.7	14	18.9	21	28.4	20	27.0	Middle Atlantic	37	34.9	26	24.5	17	16.0	26	24.5
50,000 to 75,000	6	28.6	2	9.5	9	42.9	4	19.0	East North Central	33	28.7	10	8.7	56	48.7	16	13.9
75,000 to 100,000	7	58.3	1	8.3	4	33.3	...	....	West North Central	8	16.7	2	4.2	27	56.3	11	22.9
100,000 to 250,000	8	36.4	4	18.2	9	40.9	1	4.6	South Atlantic	10	34.5	3	10.3	12	41.4	4	13.8
250,000 and over	5	22.7	5	22.7	11	50.0	1	4.6	East South Central	3	30.0	...	....	7	70.0	...	....
									West South Central	3	13.6	...	....	19	86.3	...	....
									Mountain	2	12.5	1	6.3	12	75.0	1	6.3
									Pacific	3	15.0	2	10.0	12	60.0	3	15.0

TABLE 7.

Average, Maximum and Minimum Salary, and Per Capita Expenditure for Salary.

(a) BY SIZE OF CITY

Size of City	Average Salary	Maximum Salary	Minimum Salary	Per Capita Expenditure
Under 25,000	$840	$3,600	$50	*
25,000 to 50,000	1,666	4,000	85	$.05
50,000 to 75,000	1,874	3,500	1,150	.03
75,000 to 100,000	2,700	4,000	1,500	.03
100,000 to 250,000	2,793	4,000	1,500	.02
250,000 and over	4,814	7,500	3,000	*

(b) BY GEOGRAPHIC REGION

Geographic Region	Average Salary	Maximum Salary	Minimum Salary	Per Cap Expenditure
New England	$1,334	$7,500	$100	....
Middle Atlantic	1,558	7,500	85	....
East North Central	1,270	7,500	50	....
West North Central	1,194	5,400	100	....
South Atlantic	2,156	4,000	125	....
East South Central	1,545	4,000	500	....
West South Central	1,404	5,000	420	....
Mountain	1,477	4,000	360	....
Pacific	1,829	5,000	480	....

* Range of population too wide to make "per capita" significant.

FASHION HINT FROM FRANCE.

Here is another of those very interesting little French picture postal cards, sent to the JOURNAL by its former editor, Captain Gunn, from his work in France in the education of the people in matters of sanitation and hygiene.

The meal is about ready, the table showing the very economical furnishings of the French home and the boy is getting ready to eat. He is not slamming his cap on the floor and rushing to the table, but is doing what every one should stop to do, washing his hands. The legend says, "Wash the hands before eating and after coming from the W. C." the French having adopted the familiar English initials. The dog shows signs of interest at the rattle of the dishes.

A lesson conveyed in this way to children is pretty certain to stick in the memory and is not wasted on the parents. Fashions of this kind are of enormous health importance.

*

PROFESSOR CRADDOCK'S COURSE AT COLUMBIA.

Columbia University is starting this month under Professor R. E. Craddock a course in Public Health and Standards of Living. The lectures which are to be given on Fridays will treat of the various phases of human conservation and their economic and social significance. War conditions have emphasized as never before the importance of fitness, whether in the infant, the school child or the adult. The administration of health promoting activities and the protection of the standards of living are becoming matters of national concern.

URGENT PUBLIC HEALTH NEEDS OF THE NATION.

RUPERT BLUE,
Surgeon General, United States Public Health Service, Washington, D. C.

Read before General Sessions, American Public Health Association, at Chicago, Ill., December 10, 1918.

WHEN the history of this war is written not the least significant part will be that recording the achievements in the field of preventive medicine. Who, for example, will not be deeply gratified to read that out of the huge army mobilized by the United States there have been less than 200 cases of typhoid fever. Or who, familiar with the dread rôle of typhus fever in the past, will grudge recognition of the effective control of this disease among the millions of allied troops on the Western Front? Can anyone doubt that thousands, yes, hundreds of thousands of lives have been saved as a result of the excellent work in sanitation and preventive medicine carried on by the British, French and American military organizations?

We should be remiss in our duty as guardians of the public health if we did not insist that what can be done among soldiers in the unfavorable environment of war, can and should be done among the civilian population in the far more favorable environment of peace.

With the example of the accomplishments of our military colleagues before us we must arouse the people to the importance of continuing and extending measures of health conservation throughout the country. The quality of our water supplies still leaves much to be desired; except here and there, little attention is paid to the proper disposal of excreta; milk is still a frequent carrier of infection. In matters of personal hygiene, the more than 30 per cent rejections by the draft boards because of physical defects of the registrants, affords eloquent testimony to our physical shortcomings. An infant death-rate over 100 per 1,000 births reveals a field where much saving of life can be accomplished. When one considers the very effective means available for the control and eradication of malaria, the continued prevalence of this disease in large sections of the country is not only deplorable but interferes, to an extent but little appreciated, with the economic development of the nation. We speak of tuberculosis as a preventable disease; yet it still causes nearly one-tenth of all the deaths in the United States. The same proportion holds true for pneumonia. There is really no question whatever, that the persistent application of the knowledge which medical science already possesses regarding these diseases would effect a considerable reduction in the prevalence of these infections.

It is not an easy matter to interest the general public in matters relating to sanitation and preventive medicine. The reduction of death-rates is usually too intangible to be appreciated as something of very direct personal interest. As a consequence we find almost everywhere a lamentable lack of support for the work of health authorities. With the increasing demand for economy in administration, who will doubt that the legitimate demands of public health work will not be sacrificed unless we succeed in showing that adequate support for well planned health work constitutes really wise economy, because it not only conserves our national strength, and reduces our expenditures for the treatment and care of illness and death, but also because the money lost in wages and in lowered industrial output is an astounding amount

which directly and indirectly affects the business man, the employer, the employee, the wives and the children.

But it is not to arouse a spirit of competition that the experience of the military authorities is cited. There are other urgent reasons why we should all prepare to make our work more effective than ever. I refer to the demands which will be made on health authorities throughout the land because of the problems arising from what is generally spoken of as "reconstruction."

It is only necessary to consider the great economic changes which are sure to occur in the hundreds of communities which have engaged largely in war activities. With these changes too, will go extensive shiftings of population, and these will still further unfavorably influence health conditions. The conditions after the war with the demobilization of troops and the resumption of immigration from areas in which sanitation has been necessarily neglected, constitute a situation of far greater menace to the health of the nation than has previously existed.

It must also be remembered that among the hundreds of thousands of soldiers who will soon be returned to this country a number may and will exist who will be carriers and disseminators of diseases ordinarily not prevalent in this country, or not prevalent in that part of the country to which the soldier returns. With our present knowledge concerning the rôle of convalescent and normal-carriers in the spread of infectious diseases, this is by no means an imaginary danger.

Finally public health authorities must be prepared for increased demands from the returned soldiers themselves. For months these soldiers have seen certain measures of sanitation and hygiene insisted upon as indispensable to the maintenance of good health. More than this, they have witnessed the good results which have followed the application of these measures. To the extent that these measures represent activities carried on for the soldiers by the army organization, it is not unreasonable to suppose that such activities will be demanded of local civil health authorities by the returned soldiers. Among these may be mentioned the provision of pure drinking water supply, adequate disposal of garbage, manure, and other refuse, removal of sources of fly-breeding, control of the mosquito nuisance, provision of adequate washing and bathing facilities, protection of food supplies, and the like.

We must not shut our eyes to the fact that the immediate future constitutes a period of intense competition on the part of all the nations of the world. Unless we do our utmost to bring this country to the highest degree of fitness and maintain it there, we shall fail to keep our country in the present favorable position attained with so much effort. To the health officer this means the reduction of sickness and personal injury, the prevention and correction of physical defects, the promotion of bodily health and vigor, and the prolongation of useful life. How are these desirable ends to be brought about?

It will hardly be denied that the most pressing activity on which health administrators must concentrate is that included under the general term "industrial hygiene." While health officers have insisted for some time past that industrial efficiency was largely dependent on health conditions in industry, the truth of this fact was hardly realized until the present war. With the beginning made by war industries, a rapid development of this field of public health is imperative. This should embrace extensive surveys to discover and correct health hazards in industries, medical examination and health supervision of industrial workers, the establishment and enforcement of

minimum standards of industrial hygiene, the establishment of an adequate system of reports of industrial diseases and accidents, in short everything that is needed to promote efficient operation of industries and safeguard the health of the workers.

No less important than industrial hygiene is the carrying out of a comprehensive program designed to check the present appalling waste of infant and child life. So far as the health authorities are concerned such program must aim not only to prevent diseases of infancy and childhood and to diminish maternal mortality due to conditions and diseases associated with childbirth, but it should so supervise and safeguard the health of our children that when these reach the age of manhood and womanhood they will be physically prepared to carry on the important duties imposed upon them by citizenship in our great nation. As an indispensable part of this work, the program should provide for the health supervision of school children and the children of pre-school age, including, of course, the detection and correction of their physical and mental defects.

The so-called "extra-cantonment zone" activities carried on by the United States Public Health Service have revealed anew the great need of developing rural hygiene throughout the United States. This need has been felt even in the older states with well organized health departments. Because of the large degree to which the public health of the more populous districts is dependent on rural health conditions, it will be advisable to provide for some system of Federal and state aid in order to establish and maintain an adequate system of rural health administration. The work in these districts must be directed especially to the provision of safe water supplies, the cleanly disposal of human excreta, the pasteurization of milk supplies and the bedside control of communicable diseases, and the community control of malaria.

At the present time a large amount of preventable disease in this country is still traceable to two sources whose protection and control offers no technical difficulties, namely, water supply and milk supply.

So far as the water supply is concerned, health authorities should undertake surveys of all public health supplies, and should insist on the introduction of methods of purification wherever such are indicated. That the benefits of such purification are much greater than is ordinarily appreciated is well known to health officers who have studied the so-called Mills Reinecke phenomenon.

In the case of the milk supply, efforts should be made to insure safety by insisting on pasteurization and by enforcing adequate systems of inspection of the production, handling and distribution of milk. In the extra-cantonment zones the Public Health Service in coöperation with state and local boards made a special effort to establish pasteurization plants. The results obtained were very gratifying, some ten or twelve cities having erected plants during the past six months.

A large part of the diarrhœal diseases occurring in this country is due to lack of proper sewage disposal. It is estimated that these diseases now cause over 60,000 deaths annually. A very large saving of lives can therefore be effected by the elimination within municipal limits, of cesspools and privies, the extension of water carriage sewerage systems wherever practicable, the establishment and enforcement of minimum standards of permissible pollution of streams, lakes, and rivers used for water supplies.

Finally, as the most effective means to be employed in all modern public health work, health authorities should organize and carry on health education of the general public. Efforts in this direction

should not only aim to provide an intelligent public opinion ready to coöperate fully with health authorities in the prevention and control of disease but should enable the people to undertake a large measure of self protection in health matters.

To what extent is the United States Health Service prepared to assist in carrying out this very necessary program?

In industrial hygiene the Public Health Service will naturally be expected to exercise medical and sanitary supervision of such commercial and industrial establishments as are operated by the United States government. This would include the united railway systems, the new government shipyards, munition factories and other industrial plants during the period they are controlled by the federal government.

In addition to this, however, there is an insistent demand for uniform minimum standards of industrial hygiene and of approved measures for the prevention of occupational diseases, and just as the enactment of the so-called "Model Law for Vital Statistics" has been of incalculable value in promoting vital statistics through out the United States so will the adoption of uniform minimum health standards in industry do much to promote the health of the workers. Such standards should be formulated by the Public Health Service in coöperation with the Department of Labor and should then be recommended for adoption by individual states and municipalities. The Public Health Service is also prepared to continue making health and sanitary surveys in important industries in order to assist in the recognition of occupational hazards and in the establishment of procedures for this control.

In the prevention of diseases of infancy and childhood the bureau stands ready to supplement the excellent work of the Children's Bureau in the field of child hygiene, to coöperate with the Bureau of the Census and with state and local agencies in promoting the accurate registration of all births; and to aid the Bureau of Education and state and local authorities in promoting the medical supervision of school children. As in the past, these activities will, if necessary, be supplemented by field and laboratory investigations so far as the resources of the bureau permit.

So far as rural hygiene is concerned, the bureau hopes to be able to secure funds for Federal aid-extension for the establishment and maintenance of adequate county health organizations in counties in which the county and state governments, separately or together, will bear one-half or two-thirds of the expense for reasonably intensive rural health work. Under this plan the county health officer would be given a commission in the Reserve of the Public Health Service and would constitute an invaluable integrating link in the organized system of public health administration. The bureau is also prepared to continue studies by a special board of officers to determine improved methods of rural sanitation, and to help formulate and carry out, in coöperation with local authorities extensive campaigns for the sanitation of groups of rural towns.

In promoting the quality of the country's water supplies the bureau is prepared to continue the extensive field, laboratory and engineering studies carried on during the past six or seven years. On the basis of these it will aid in the establishment of minimum standards of purity, will use its federal authority to protect sources of interstate water supplies, and supplies used on railroads and steamships engaged in interstate traffic. The service owns and operates two laboratory cars, both of which are ready at any time to take

the road in response to requests of state and municipal health authorities.

For the protection and improvement of milk supplies, the bureau will continue to make laboratory and field investigations and in coöperation with state and local health authorities will conduct experimental demonstrations looking toward the improvement of milk supplies generally. It will also aid the adoption of uniform minimum standards for the production and handling of milk supplies.

Through various divisions of the bureau the Public Health Service will aid in promoting proper sewage disposal throughout the country. Laboratory and experimental field investigations along this line will be made to devise satisfactory methods of sewage disposal to meet different requirements as to size of the unit, character of the sewage, available facilities for ultimate disposal, degree of purification necessary, and the like. As in dealing with water supplies, the Public Health Service will use its Federal authority to establish and enforce minimum standards of permissible pollution of streams, lakes, and rivers used for interstate water supplies, and will assist state and local health authorities in obtaining safe sewage disposal in their respective communities.

Continuing its work of previous years the Public Health Service will make anopheline and malaria surveys throughout the country, and conduct experimental demonstrations in various phases of anti-malarial work. The bureau is also prepared to assist state and local health authorities by detailing trained officers to plan, organize and direct anti-malarial campaigns, and to aid such authorities in securing appropriations for the reclamation of large areas from malaria through appropriate drainage work. The bureau will make an effort to secure Federal aid for such projects by asking for appropriations on a 50–50 basis.

The medical officers and sanitary engineers of the Public Health Service have had splendid training in anti-malarial work during the past two years. More than $700,000 have been expended in that time for the protection of the military camps against malaria.

In dealing with tuberculosis the Public Health Service will aid in the adoption of uniform laws for the control of this disease, and assist, as far as practicable in solving the difficult problems arising from the unnecessary migration of the tuberculous. In addition to this, the Public Health Service plans to coöperate with the War Risk Bureau in providing sanitorium treatment for tuberculous soldiers and sailors in need of such care. An adequate program for the control of tuberculosis would also involve the establishment of a commission to develop more effective methods for the control and cure of this great scourge.

In connection with all the activities just enumerated the Public Health Service plans to constitute itself a national center and clearing house for information, advice, and educational assistance. That such a center is urgently needed is evident to all who have had practical experience in the field of popular health education. At the present time, because of the lack of such a center, much educational effort is wasted; the valuable experiences made by one group of educators are unknown and therefore are not utilized by other groups; obsolete and expensive methods are still frequently employed; there is a distressing duplication of effort in the preparation and publication of popular health leaflets. The high initial cost of some forms of educational methods such as lithographed posters and moving pictures, prevent the wider use of these excellent educational vehicles; and finally, ignorance of the

technical side of modern publicity methods results in the waste of otherwise valuable educational material.

It is believed that most of these defects in our present system of popular health education will be overcome by the establishment, within the Public Health Service, of a special division dealing with health education, and that such an activity will constitute an invaluable coöperative aid to state and local health authorities.

Finally, the establishment of the permanent Reserve in the Public Health Service constitutes one of the most progressive steps in public health development which this country has yet realized. Such a Reserve will not only provide a large body of trained men available for active duty to coöperate with state and local health agencies in meeting national emergencies, but it will train and keep abreast of the times thousands of reserve officers, who, when on inactive duty, will become centers for local health development throughout the nation. In fact, at present, it is difficult to visualize the wonderful possibilities of such a trained organization.

The immediate future is perhaps the most important period that has ever confronted health authorities. It will require all our energies and the closest coöperation. Not to utilize this opportunity adequately, to raise the standard of health administration throughout the country will be equivalent to a definite step backward. Let it not be said that reconstruction found us unprepared.



HEALTH PROBLEMS OF THE FOREIGN BORN.

Walter H. Brown, M. D.,
Health Officer, Bridgeport, Conn.

Read before the Sociological Section, American Public Health Association, at Chicago, Ill., December 10, 1918.

PUBLIC health administration is rapidly passing into a new stage. The days of "shotgun" methods are numbered. It is just as important for health officials to make accurate diagnoses of community ills as it is for the physician to know exactly what ails his patient.

Rational administrative treatment of disease can be based only upon exact knowledge. This is well illustrated by the history of yellow fever. Before the discovery of the cause and mode of transmission of this disease, whole cities were put under "shotgun" quarantine in an attempt to control the infection. We now know that the concentration of our efforts on mosquito control will succeed where "shotgun" methods failed. This principle of exact diagnosis and rational treatment should now be applied to all of our public health problems.

Sickness must be prevented and death deferred, not only by attacking disease and its immediate causes, but also by correcting the social and economic conditions which we now realize play such an important part. Consequently, the scope of public health work should not be limited to the narrow confines of sanitation, but should include all that is serviceable in sociology and economics.

This paper is presented with a view of calling to the attention of public health workers the need of exact community diagnoses and of provoking a discussion of this need in a particular case, namely, health problems of the foreign born.

Since 1776, there has poured into the United States a constant stream of im-

migration. During the early period from 1776 to 1820, this amounted to 250,000 persons. From 1820 to 1915, the arrivals at all ports of entry have been 32,354,124. These new arrivals were made up of every race and nationality under the sun.

The far-reaching influence of this dilution of our population has never been accurately measured. That it has markedly modified the customs, manners, laws and health of the American people cannot be doubted. Therefore, we should set ourselves the task of studying the past health history and the present health status of these groups of foreign born population, in order to evaluate properly their physical vices and virtues, and thus to determine what sort of a contribution they are making to the American public health problem.

The character and origin of our immigrants is of practical importance. The older immigration (prior to 1885) was largely Irish and German in composition while the newer immigrants are largely Jewish, Italians and Slavs.

Dublin makes the significant statement that "the foreign countries from which our immigrants come show uniformly a higher mortality rate than that prevailing in United States. The data shows that the effect of the mortality of the foreign born on that of the total population is not altogether favorable."

It is imperative, then, for us to have accurate knowledge of the mortality rates of the race groups that compose the "foreign born." A number of individual studies have been made by Billings, Hoffman, Dublin,* Guilfoy and Davis, on various aspects of this question. All of them are significant, but none of them are complete enough for final judgment. It has been established, however, that the foreign born groups have general death-rates higher than the native born. A closer analysis of these returns shows that some groups are health assets and some are health liabilities.

We know that the Jewish stock acts favorably on our mortality curves, while the Irish stock acts unfavorably. We now know that the presence of Russian and Austro-Hungarian Jews and Swedes favorably influences the infant mortality rate while the presence of English, German, Irish and Italian parents serves to increase the infant deaths. A careful analysis of the work already done indicates that this field of inquiry promises to yield some fundamental information in the solution of many of our American public health problems. It is the writer's belief that there should be instituted a comprehensive study of this subject that would make this information available to all public health workers.

The scope of this inquiry should comprise a careful comparative study of racial heredity, health and habits.

Racial Heredity.

This is an important factor in health. The physical make-up of the various human groups has much to do with their power to resist disease. The apparent immunity of some groups to certain diseases is probably due to the experiences of their ancestors. This racial heredity can best be approached by a careful historical and statistical study of the "native land" of the foreign born groups.

Racial Health.

It will be impossible for us to understand fully the factors to our mortality rates until we have made a careful study of specific death rates from various diseases. This study should include proper consideration of the factors specified by Guilfoy as necessary to make satisfactory comparisons, namely,—

* Factors in American Mortality, L. I. Dublin, American Economic Review. Vol. VI, No. 3.

1. Age grouping of nationality.
2. Sex grouping and distribution.
3. Occupation.
4. Social and economic environment.
5. Climatic conditions.
6. Civil conditions.

This information will give us a clear picture of the racial influence upon health.

Racial Habits.

All our foreign born groups bring with them their own habits and customs. We will fail in our interpretation of their health status if we neglect to consider carefully the characteristics of each group. To know the peculiar racial food habits; to understand the quality of their personal hygiene and to grasp properly their true standards of living, these are the necessary facts upon which to base an intelligent understanding of our health problems among the foreign born. As we come to be more intimately acquainted with the various groups, we will realize that they have many fine qualities that can be profitably adopted by the American born.

The facts already presented indicate clearly that we have a peculiar problem in dealing with our foreign born population. In order to meet this situation, we should have at our command the fundamental data about these groups of people, not only as we meet them in America but also as they have been in their native lands. These data can only be obtained through a systematic study such as has been indicated above. They will then form the background for a real, effective program for meeting the practical difficulties which the foreign born present to the health official.

The practical application of such information could be applied to such difficult problems as that of midwives, child welfare, control of communicable diseases, housing, sanitation and personal hygiene.

Midwives.

Every health official in any city having a large percentage of foreign born, realizes the great importance of midwives upon the death rates among women and infants. No satisfactory solution of this problem will ever be reached until due consideration is given to the long established European *customs*. It will take years of intelligent effort to change these customs if that is desirable or to substitute modern standards among midwives.

Child Welfare.

The morbidity and mortality rates among children of certain of the foreign born groups is of grave importance. Careful studies already made show that their influence is not all unfavorable. As noted previously, the presence of Russian and Austro-Hungarian Jews and Swedes influence favorably the child mortality rates. These facts need further investigation. In addition, the Children's Bureau studies have shown the definite relationship between wages and infant mortality. No intelligent child welfare program can be successful until the economic factors underlying it are given proper attention.

Control of Communicable Diseases.

Frequently, health officials feel that their greatest difficulties are in controlling communicable diseases among the foreign born. This difficulty is only peculiar to the foreign born where they can not understand our language. Sanitary ignorance is not confined to the foreign born. We need here again the knowledge of the racial traits as well as a vehicle of communication. This communication may be established through the medium of interpreters, teaching of English, foreign speaking doctors and nurses or literature in foreign languages. The underlying problem is the same

among the foreign born as among the native born.

Housing.

One of the characteristics of our foreign born is their segregation in districts. Practically all of these colonies are in the poorer sections of the city. This choice of homes is not entirely voluntary. It is due to two influences, the economic status of the group and the tendency to restrict the "foreigners" to certain quarters. Considerable condemnation is heard of the lack of sanitation in these homes. The writer maintains that it is impossible to maintain sanitary standards upon less than living wages and the compulsion that this brings with it of inadequate living quarters. I do not believe that it is any more difficult to teach our foreign born people proper home sanitation than it is the American born, if we give them an equal chance, socially and economically.

Personal Hygiene.

Frequently, we hear all "foreigners" classified as "dirty" and devoid of all knowledge of personal hygiene. Superficial studies of this subject would seem to confirm this, but more careful analyses will probably reveal that it is not entirely a matter of racial trait or choice. This is well illustrated by the rapid change in habits of living among those members of the groups who have succeeded in rising somewhat higher in the economic scale.

These then are some of the phases of the problem of health among the foreign born as they present themselves to health workers. Most of them are universal problems that are not bounded by racial lines, all of them have the element of public health education. Permeating all of them is the great problem of the proper assimilation of all of our foreign born residents. This brings us to the important subject of Americanization.

This movement is well under way. It undoubtedly presents at this moment unusual opportunities for real service. The success of it will depend upon taking into consideration all of the fundamental elements of the problem. Among these elements are surely an accurate and sympathetic understanding of the health problems of the foreign born. Therefore, the writer appeals to health workers to make a careful study of this matter in their own communities and to insist that into any Americanization program shall be incorporated a proper consideration of health.



DISTRIBUTION OF VACCINES AND SERUMS BY THE STATE LABORATORIES.

C. A. Shore, M. D.,
Director, North Carolina State Laboratory of Hygiene.

Read before the Laboratory Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

IN EVERY public health laboratory the question frequently arises as to whether it is advisable to undertake certain new lines of work. In the average state laboratory the problem is usually financial and it becomes necessary to decide which of several proposed undertakings will be of the most service to the state.

Perhaps no two laboratories have decided these questions exactly alike, and this is as it should be. We all have identical aims but the problems are never quite the same. The possibility of block-

ing all initiative is a distinct danger in the efforts which have been made to standardize all laboratories.

It has been suggested that the work of the North Carolina laboratory in vaccines and antitoxins would be of interest as an illustration of what it was thought best to do under our own rather average conditions. We have considered the original diagnostic work as always of the first importance but a state laboratory should surely be more than this. Educational and health propaganda belong only incidentally to the laboratory and as for research work no rules can be laid down except that it should not be made an end in itself.

The vaccine work was first suggested by the remarkable achievement of eliminating typhoid fever from the United States Army. In 1913, before we began the free distribution of typhoid vaccine, the cost of the three injections was $2.50. This cost alone was a sufficient reason for a limited use. The vaccine made in the laboratory is sent free to any registered physician. We estimate that at least one-fifth of our population has been immunized with this vaccine since 1913.

It was the success of the typhoid vaccine which showed us the need of this service. We have since in like manner distributed other vaccines such as, typhoid and paratyphoid triple vaccine, pertussis vaccine and smallpox vaccine. A much more pretentious undertaking is the making of antitoxins. That there is need for state aid in providing diphtheria antitoxin is so self-evident to me that it seems useless to go into the arguments. It is only necessary to state that in certain communities of our state the retail price of commercial diphtheria antitoxin has only recently been $8 for 5,000 units. This cost is prohibitive to a large percentage of the population. The question before us was to decide between two methods: either to secure an appropriation sufficient to buy antitoxin for the state or to make it ourselves. We chose the latter. It was thought best to impose a price of 25 cents on each package of antitoxin, which amount approximates the cost of the syringe and package. The price to the public is the same whether the syringe contains 1,000 or 10,000 units. We believe this small charge will be sufficient to insure proper care of the antitoxin and to guard against waste, which might occur with an absolutely free article. In a similar manner the manufacture of tetanus antitoxin has been undertaken and various vaccines and antitoxins will doubtless be taken up when deemed practical. As a matter of policy as well as on account of lack of funds the distribution is limited to those products whose efficacy has been proven and which are generally accepted.

It may be of interest to know the cost of this work. It is difficult to go into details but I may say that the typhoid vaccine work was undertaken when our total income for all work was $15,000 per year. The income this year is only $25,000, which amount has carried us through. Our budget for the coming year is $35,000, and we hope to get it.

In conclusion I want to make it plain that I am not advocating indiscriminate manufacture of vaccines and serum by the state. I do urge, however, that the state exercise its right of control over those which are of proven value and which are in reality indispensable. When this is done it will be found best in some states to manufacture them.

A YEAR'S CHANGES IN FOOD HABITS.

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Read before Food and Drugs Section, American Public Health Association, at Chicago, Ill., December 10, 1918.

REALIZING the enormous area included in the United States and Canada, involving distinct climatic conditions both from North to South and from East to West, it is manifestly difficult to estimate just what changes have taken place within a year or two in the food habits of our people in the several areas whose natural products vary so greatly.

Professor Taylor in his address before congress pointed out that quite notable differences existed in the food habits of the people of Southern Germany as compared with those in Prussia and the North Eastern Provinces, their diet being much more of a vegetable and fruit and less of a meat character. If this be true it need hardly be said that the people of the Southern States, where the banana and orange are native, would eat much less animal foods than those of the Northern States and Canada where hitherto the quantity of such has been from 8 to 10 ounces a day as the average for the whole population.

In any discussion of a year's changes in food habits we naturally think, however, chiefly of the changes which have resulted from the economies demanded by war needs, and it is to this phase of the subject that I shall especially direct your attention. During the past forty years the people of the Northern States to a much greater extent than the conservative population of Great Britain, have changed their food habits from the time-honored meat and bread diet, to a very much more rational dietary involving the increased use of not only home-grown vegetables but also of the fruits of the South and West, which have been advertised with the business persistence of large corporations engaged in the shipping and forwarding business.

In an admirable booklet on the "Changes in the Food Supply and Their Relation to Nutrition," by Prof. M. B. Mendel of Yale, particular attention is given to this point, statistics therein showing that the value of the products of the orchards in the United States in 1840 was about $8,000,000 while the census of 1910 gives the value at $140,867,000. Similarly the small fruits contributed $3,000,000, grapes $22,000,000, citrus fruits $23,000,000 and sub-tropical fruits $2,000,000. It will thus be seen that while the population increased some five times since 1840, the use of fruits has increased over twenty times during the same period. While such a change in the use of fruits is incidental to the coming of the steamship and railway, associated with the enormous increase in urban population, it has nevertheless been accompanied by certain changes in the fashion of foods of a less desirable character. Thus the use of all wheat flour by the old milling process has been replaced by a flour made by the modern roller process from which for greater profits in by-products much of the protein and mineral salts have been removed. Not only in this way has the use of starches greatly increased, as well as of sugar, but the food of the growing children of our population has also lost much necessary protein, while the use of fats and oils formerly universal in the bacon of former times has notably been decreased. However, this disuse of the coarser fats and oils has in some degree

been made up by an increase in the use of butter, as the form of fat not only most palatable to the American but likewise the most digestible.

To the use of fresh vegetables must be added the enormously increased use of canned fruits and vegetables, the quantities of which are not included in the statistics already referred to. These amounted in the United States in 1908 to $120,000,000 in value. Another very notable change in the fashions or fancies in foods during the last twenty years is seen in the use of manufactured articles in which the ordinary grains are variously used in breakfast food packages. Apart, however, from the greatly increased cost of many of these foods, the development of a taste for these foods, perhaps more digestible through their partial change to sugar, has tended to the further use of hydrocarbons, lacking in the protein contents essential to a true food. As the chief analyst of inland revenue for Canada says: "The popularity of these foods is due to four factors: (1) Attractive and widespread advertising. (2) A growing tendency to save time in the preparation of the meal. (3) The guarantee of cleanliness furnished by the manner of packing. (4) The attractive flavor possessed by most of these foods." Another change in food fashions is seen in the use of milk products in the shape of flavored ice-creams as a condiment, thus removing the protein contents from a food formerly used in the shape of cheese.

Except in seaport towns it is probable that the use of fish has on the whole until recently decreased, not only owing to the lessened supply and increased cost, but also because fish unless absolutely fresh is usually held in disfavor. Indeed the popularity of fish judged from the amount of it canned, seems to have increased less during the last census period so far as increased quantity is concerned than any other canned product.

This brief review illustrates the changes which have taken place in the food habits of the American and Canadian people during the last half century. The direction of these changes has doubtless been toward supplying articles which, while more attractive to the palate, have likewise been more readily digestible for the large number of people, whose habits of living have lessened the need for the stronger protein foods as oatmeal, all wheat, rye and barley. On the other hand grave injuries have resulted to the nutrition of classes whose physiological needs have suffered through the lack of proteins, whether due to their high cost or to the indulgence of gustatory fancies. There is little doubt, however, but that the introduction of Southern fresh vegetables and fruits during the long winter of the North has proved on the whole greatly beneficial to that large class of workers to whom variety in their food has always proved difficult owing to expense.

We are now in a position to view the food situation as it actually exists in America after two years of unceasing submarine warfare, which has affected the normal distribution of foods owing to the needs of the Allies in the four essentials of wheat, bacon, sugar and fats, all of which have been steadily decreasing year by year during the last four years. That the situation of the allied peoples as well as of their armies has not really been serious as yet is in a large measure due to the experience and energy of Food Controller Hoover, whose administration of the Belgium Relief Food Fund probably fitted him to undertake the responsibilities laid upon him by the government as none other could. He was impressed with the great need which existed for the conservation of every

pound of food, which could in any way supply energy to the soldiers and keep those engaged in war work, such as munitions, at the maximum degree of efficiency under existing conditions, while maintaining the civil population of the Allies at the highest possible stage of comfort necessary to efficiency. The submarine warfare has added enormously to the difficulty of the situation. Even as late as August, 1918, after all the destruction of ocean tonnage since February, 1916, the losses due to submarines amounted to 327,675 gross tons of which 176,401, a slight decrease, was British tonnage. On the other hand to have some idea of the total tonnage arriving at British ports, it may be stated that there were 8,881,639 tons of shipping entering and clearing from the United Kingdom during the same month.

It is obvious then that the problem as shown by these various figures, rendered it necessary that every possible effort should be made to have transferred from this continent those foods especially high in their energy-producing value, most compact in bulk in comparison with their food values, least perishable and most constant in quality and least variable and cheapest in price. Such, as has already been pointed out, are the four items wheat, bacon, fats, and sugar. A further situation had to be met in that Canada during four years and the United States during the last year and a half had seen a large proportion of the man power of both nations being removed from production; so that we find that in spite of every effort there has been a steady reduction in the number of cattle and hogs and a decreased number of milch cows. Thus the Advisory Committee of Congress in May, 1918, reported 29 per cent less live stock in the United States, 20 per cent less hogs in Iowa and 3 per cent fewer milch cows.

It is obvious then that the first step to be taken was to ensure the largest possible saving in wheat to supply not only our own increasing armies in France and Italy, but also the other Allies dependent on us for food. As the Food Board has reported there were but 20,000,000 bushels surplus of the 1917 crop for export under ordinary conditions, yet 120,000,000 bushels of wheat were exported; which meant that the people of the United States had consumed 100,000,000 less bushels. This is all the more notable since the nutritive value of the poor crop of 1917 was less by 7 per cent than the average. Canada exported during the same period of wheat 85,000,000 bushels more than the average for the preceding three years.

It is further important to realize that the world's supply of food animals had fallen since the beginning of the war by 115,000,000. We have also recently been made to realize how dependent we are on this continent when we learn that the submarines off our coasts sank in a few months 50,000,000 pounds of sugar.

Manifestly then there were three things for us to do in this crisis, viz.:

1. Produce more of these several food supplies.

2. Conserve them in every way possible especially by consuming less.

3. Replace them by other kinds of foods.

With regard to the first our Food Controllers tell us that in 1918 the United States planted 10 per cent more winter wheat while Canada planted 6,000,000 acres more grain, equivalent to an increase of 120,000,000 bushels. England enormously increased her acreage up to the point of supplying 70 per cent of her own needs, having an increased acreage of 1,000,000 acres and 10,000,000 acres in crop; but the crops of France and Italy were notably less than the average.

Thus the sugar production of France in 1917 fell from 750,000 tons to 210,000. But a remarkable outcome of war needs is seen in the armies in the fields becoming their own food providers. Mesopotamia in 1918 has grown more grain than before in centuries of her history, having 7,000,000 acres in crops; while irrigation by pumping water from the Tigris has raised 25,000 tons of wheat and 100,000 tons of barley. Egypt has been once more a granary in time of dearth and has given 424,000 tons of hay in 1918 and will harvest an enormous crop of sugar.

Such are the chief illustrations of how the Allies' food supply has been assured for this year; but perhaps the most interesting phase of our subject is that in our second postulate of saving more by consuming less of these essential foodstuffs. We all know that none amongst us has suffered from a dearth of available food, although the poor may have been injured through high prices. It is of course true that some corn, rye and barley have been introduced into our bread, some glucose into our sugar supply, and some fish into our animal food supply; but essentially we have not seriously shifted the movable weight on the food balance so far as our necessary calories are concerned except perhaps to lessen their excess. C. F. Langworthy, chemist to the Department of Agriculture, Washington, is quoted as saying that we ordinarily eat three times as much meat as we need and that saving is possible is seen in the fact that Canada's excess meat export last year with fewer animals grown was enough to feed 500,000 soldiers at the front.

Now with these facts before us we naturally enquire what changes have taken place in our use of foods. All will at once turn to what he is personally cognizant of, viz.: the war garden. Professor Taylor in illustrating the means by which hard-pressed Germany has been able to carry on, tells us that her population through each urban dweller having been given a plot of suburban land to cultivate, has supplied at least 30 per cent of the food necessary for their sustenance. How much this has meant will be understood when we remember that before the war 70 per cent of the whole population in Germany was urban. Now in less degree, indeed, because the necessity has not been so pressing, all have turned to war gardening in America. It is difficult to get complete statistics because so many people have simply enlarged their previous former gardening and these have been of course the most efficient. However, the Food Board of Canada reports an estimated total of 15,000 acres under cultivation in 1918 based on five times the acreage in 1917.

In the Northern States and Canada undoubtedly the greatest increase has been in the potato crop. Germany indeed has long appreciated the value of this source of food. Professor Prescott's analysis gives the following results:

Potatoes.	Per cent.
Water	78.3
Protein	2.2
Fat	0.1
Hydrocarbon	18.0
Ash	1.0

Calories per lb., 385

Bananas.	Per cent.
Water	75.3
Protein	1.3
Fat	0.6
Hydrocarbon	22.0
Ash	0.8

Calories per lb., 460

Fortunately it is food so simply grown that many of the wage-earning class have been able to provide enough to supply

their own household requirements, while cooked in the usual way it serves as the most important item in replacing our bread supply. There is, however, no food whose useful possibilities have been more restricted in America, than the potato. With 80 per cent of water and sold generally at a low price, the cost of transportation of the raw product limits its use largely to its home district. By dehydration or drying and its conversion into chips or potato flour it could become here as well as in Germany one of the most important sources to replace wheaten flour as a food for our people. How important these alternative food supplies are may be judged from the fact that the saving of a single pound of bread in America per person weekly will increaes the wheat export by 100,000,000 bushels annually.

Incidentally it may be stated that the use of the sweet potato and the banana in the South is in the same category and, as Professor Prescott states, the banana at 5 cents per pound is next to dried beans and bread the cheapest food when measured in calories or fuel value. But the war garden has played a further use in its supplying food during the summer from the earliest onions, lettuce, beets, peas, and beans, to the later corn, tomatoes, carrots, parsnips, and celery, all of which in succession have supplied material for canning and drying up to the needs of the many householders. In addition to home products, it is probable too that the output of the canning companies in these and other vegetables and fruits has been notably increased and will be made ancillary, as canned goods, to the overseas supplies for the army.

In addition to the war gardens Canada has seen during the year a very notable increase in the home consumption of fish. With an abundance of meats from homegrown animals the Canadian people, chiefly located inland, have preferred through convenience to eat animal rather than fish food. The increase in the number of fishermen and the capital invested in fishing showed no marked increase in the decade 1900–1910. Possessed on both coasts of probably the most valuable fisheries in the world, both on account of the climate and the indented character of the coasts, Canada until only recently, owing to other more attractive or less strenuous occupations, has allowed this great source of food and wealth to remain undeveloped in proportion to its possibilities. Enormous supplies of a variety of edible fish as halibut, sole, skate, and flat fish exist in Canadian waters; while in the Great Lakes and the thousand inland lakes of the Laurentians immense quantities of the best fresh water fish are available. To indicate how rapidly this source of food supply has been utilized, it may be stated that since the Food Board took up the matter seriously, the number of licensed wholesale fish establishments in Canada increased from 900 to 1,550, including 900 headquarters; while 55 per cent of the total western fish catch was consumed at home as compared with 15 per cent the previous year. A single trawler caught 120,000 pounds of flat fish and cod in eight days off the North British Columbia Coast which were frozen when landed, when not sold for immediate consumption; while cod and halibut from the west coast sold in Montreal at 12½ cents per pound and mackerel from the Atlantic was sold at similar prices. Indeed in May, 1918, the fish consumption of Canada was one pound per week per capita, and 8,500,000 pounds were sold in the first five months of 1918 as compared with 5,000,000 pounds last year.

In no item perhaps have the people of this continent been more disturbed than in the restriction of the sugar supply.

Sugar since the early days of sorghum and sugar cane in the South and maple sugar in the North has been used much as salt or any other condiment. In spite of occasional medical warnings as to its injurious effects if used in excess, from babyhood to old age, our people have cultivated a sweet tooth. The old time candy stick and candy crystals may have been replaced by more expensive chocolates and other confections; but sugar is used everywhere from the pickaninny who chews sugar cane to the Northerner, who from using maple sugar has looked upon sugar as an elementary food. There is little doubt, however, that its restriction to some extent through being replaced by oatmeal, barley, meat, peas and beans, with more use of milk would prove a distinct benefit to the growing children of our continent, whose sweet tooth has been allowed to control indulgent mothers rather than the knowledge that the proteins and fats are much more essential to the development of the growing animal.

A word need be said regarding the use of milk and milk products. The value of milk as a complete food for children and for general use in a mixed diet is everywhere accepted, and it is now only a question of obtaining it in sufficient quantity and quality at any reasonable price. We are all familar with the struggle that has gone on between the producers and milk-dealers on this continent during the past two years. It is stated that 30 per cent of the milch cows in New York state instead of the usual 17 per cent were slaughtered in 1917. The demand for meat was so great and prices so high, cattle food so costly and labor so scarce and expensive, that the farmer seemed perfectly determined to either get much more for the milk or go out of the business. The evidence from the Chicago official investigation seemed to prove that a similar situation has everywhere existed. Statistics are difficult to obtain; but it is probable that in no one particular have the infants and children of the poorer people been affected more seriously than in a lessened milk supply; while as for eggs, their use would seem to have been restricted largely to the wealthy and to those provident householders, who have kept a dozen hens and fed them on garden and household refuse. If milk foods, such as cheese, have been increased for export as war food at the expense of the children's food, it could only be excused on the ground of some pressing necessity, but we have good evidence to know that the milk problem was serious before the war and will only be solved when it is managed as a municipal utility as to quantity and quality and distributed on some basis as efficiently as is public gas, electricity, coal and water. If the evolution of society is to make three-fourths of the people non-producers of food and urban residents, then public safety and efficiency demand that food, the first item in the life of the people, be regulated as carefully by government, whether general or municipal, as the quantity and quality of the water and other liquid supplies.



Don't Forget to Mark in Your Office Tickler:—
"October 6–9, New Orleans, Annual Meeting of the A. P. H. A."

ISOLATION OF THE ANTHRAX BACILLUS FROM SHAVING BRUSHES.

JAMES P. LEAKE, *Passed Assistant Surgeon*,
and
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ABOUT three years ago the rather startling observation was made in England that shaving brushes may serve as a vehicle for the organism of anthrax and convey this infection to man. This peculiar mode of infection was made the subject of a very exhaustive study by English sanitarians. A report on the subject was made in 1917 to the Local Government Board.[1] Sixty-five cases were described, sixteen of which could with certainty be traced to infected shaving brushes. Other reports pertaining to this mode of infection were prepared by Elworthy,[2] Eastwood,[3,4] and Newsholme.[5] A brief review is contained in United States Public Health Reports 33, No. 28 (July 12, 1918).

Among the English troops in France 28 cases of anthrax occurred from 1915 to February, 1917. From the beginning of the war up to February, 1917, 18 infections with anthrax occurred among the troops in England. The most thoroughly studied series, however, was that of 19 civilian cases in Great Britain. In most of these cases the proof of the source of infection was absolute, and in the other cases the circumstantial evidence was very strong.

It is not surprising that the possibility of infection from this source has escaped attention. Probably such infections have occurred in the past but the number of cases must have been small indeed. The subject of anthrax infection through the medium of shaving brushes is of interest because it presents a novel means of infection. Following the mobilization of large forces in the warring nations the demand for shaving brushes soon exceeded the supply and bristles from questionable sources were employed in their manufacture. The outbreaks of anthrax reported followed as a logical consequence.

Recently, cases of anthrax due to the use of shaving brushes occurred among the troops in various training camps in this country and the Public Health Service was called upon to investigate the market supply.

Attempts to isolate the anthrax bacillus from infected materials of various sorts apart from the animal body have been made in the past on numerous occasions, but the cases of successful isolation cited in the literature are rather rare. The principal reason is that anthrax spores in infected material are, as a rule, present in small numbers while saprophytes predominate. Nevertheless, the presence of anthrax outside the animal body previous to the English investigations has been proven by Gruber,[6] Heim,[7] Russ,[8] Theodorov,[9] Reichel[10] and Grabert.[11] Rembold[12] found anthrax in the dust of a tannery, Silberschmidt[13] in the dust of a horsehair spin-house, and Schnuerer[14] in hay. Gruber[6] recommended heating of the bouillon suspension for 15 to 30 minutes at 60° to 70° C. in order to destroy the vegetative forms. In order to eliminate the spores of malignant edema, if such should be present, Gruber incubated the bouillon previous to heating for some time under strictly anaërobic conditions. The vegetative form of malignant edema resulting from this incuba-

tion succumbed to the subsequent heating process. The process of isolation of anthrax varies, of course, with different observers. Generally an emulsion is prepared with sterile saline or bouillon. The emulsion is heated, but not boiled, and the resulting suspension subjected to the usual cultural tests and animal inoculations. Since the number of anthrax spores may be very small Schnuerer is very much in favor of concentrating the suspension by the aid of a centrifuge. Gruber concentrated the bacterial suspension by the addition of coagulents, such as are employed in water purification. The resulting floc carried with it practically all of the bacteria. Schnuerer has been successful in recovering anthrax from a hay infusion evaporated to a small volume in vacuum at 90° C. Eurich,[15] who has had a very extensive experience in anthrax isolation, recommends heating the hair in water containing five per cent potash to 80° C. to form soluble albuminates. This would seem hardly necessary as a routine procedure except where one deals with materials greatly soiled with animal dirt.

Various methods have been employed at the Hygienic Laboratory for the isolation of anthrax from suspected shaving brushes. A preliminary trial of direct broth planting with subsequent animal inoculation, such as is used in the routine testing of vaccine virus for tetanus, demonstrated the presence of tetanus in two out of six brushes examined in this way. The procedure finally adopted was as follows:

About one-half of the bristles of a shaving brush were cut off with a sterile knife and placed in a sterile mortar where the content was macerated with approximately 50 cc. saline. The resulting suspension was pipetted into flasks or large test tubes. Different portions have been heated at various temperatures from 65° to 90° for 10 to 30 minutes. Eighty degrees for 10 to 30 minutes appears to be a satisfactory exposure to destroy vegetative forms.

If it is not possible to use the greater part of the material in animals and plates, the concentration of the bacterial suspension by sedimentation has much in its favor. We used a fractional sedimentation to eliminate the larger and heavier particles after grinding. The saline suspension was injected subcutaneously into mice, in doses of 0.5 cc. to 0.1 cc. and into guinea pigs in doses of 2 cc. to 12 cc. Agar plates were also prepared from the suspension in sufficient dilution to show good distribution. Satisfactory plates could ordinarily be obtained by proceeding in the following manner: One cc. of the saline suspension was diluted with 10 cc. of saline. One cc. of this diluted suspension was intimately mixed with 10 cc. of liquefied agar for the first plate and one cc. of this seeded agar was placed into a second melted agar tube for another. Of the two plates one, as a rule, showed good distribution of colonies. This procedure has to be modified in accordance with the material to be examined. Badly polluted material requires more and higher dilutions. The plates were incubated over night and suspicious colonies, particularly deep colonies, searched for with the low dry objective. (See Fig. I, II and III.) There are many colonies which simulate surface anthrax colonies, but after some experience the selection of these also proves less difficult. The suspicious colonies are fished on agar slants and studied morphologically. A saline emulsion is prepared from the 24-hour growth on the agar slants and 0.2 cc. injected into two mice. The mice which die are necropsied, smears prepared from the heart's blood and spleen, also agar plates are made. One loopful of material into the first agar tube, and two loopfuls from this tube into a second usually re-

sult in good distribution. The smears are stained by Gram's method and examined for large bacilli, frequently in pairs or very short chains, sometimes showing a capsule, and often with gram-positive elements within a gram-negative ground substance.

From the plates, typical colonies are transferred to slants, from which further identification takes place. The organisms found were pathogenic in very small doses. With an organism possessing the ordinary characteristics of the anthrax bacillus, this is perhaps the most important point in identification. One one-hundred thousandth of an agar slant was fatal with our strains. Identification by means of specific serum protection proved unreliable, due, apparently, to the high virulence of the cultures. Previous workers have found in testing anti-anthrax serum for protective value that it is necessary to use cultures of relatively low virulence for the species of animal employed. Besides high pathogenicity, the presence of edema and the enlarged spleen, with characteristic invasion of the tissues in smears or sections, are found in some of the animals infected. Occasionally, however, the smears are atypical, showing bacilli in such scant numbers that postmortem invasion is suggested. Stab cultures into gelatin were prepared to observe the fur-tree growth. Bouillon cultures were made to observe the stringy growth which quickly settles to the bottom of the tube and which is so characteristic of anthrax.

Of the nine shaving brushes from various sources and of various types examined in this way, three, of different types, were found to be infected with anthrax. Two of the anthrax-bearing brushes were purchased in the open market and had no known relation to any cases of the disease. The third was presumably the source of infection in a human case, having been used but a few times before the man developed a malignant pustule in the shaving area. Of six animals, inoculated with suspension from the free part of the bristles of this brush, only one succumbed to anthrax, and no anthrax colonies were found in the plates from the original suspension. The butt ends of the bristles imbedded in the handle of the brush were then macerated and 24 animals were inoculated with this suspension; 12 of these died in less than 4 days with anthrax septicemia.

This was taken to prove that the brush was not merely infected by the user in shaving after the pustule had developed, but that the bristles themselves originally carried anthrax. The agar plates made from the butt end of the bristles indicated that there was some soluble substance in the binder or cement which inhibited the growth of micro-organisms in artificial media.

The recognition of the anthrax colony in the agar plate is one of the most important parts of the technique, and perhaps the most difficult part to the inexperienced. At first many colonies are fished which later on prove to be non-pathogenic. There are several species which closely resemble anthrax colonies. Even true anthrax colonies will vary in appearance on the plates. Markoff[16] examined 53 strains of true anthrax and he described 5 varieties which differed in appearance on agar plates, in bouillon, in gelatin stab cultures, and morphologically. Markoff claims that it is easy to propagate new varieties artificially, depending upon the age of the culture, the choice of medium, the temperature, moisture content of the air, and inherent cultural tendencies of the strain. A typical surface colony appears at first as a small, round, grayish white spot which spreads out generally. Often, however, the contour will be irregular with projec-

tions of bundles of filaments and cords. Under the low power the typical Medusa-head appearance seldom fails to show. The colonies must be examined early, however, since they have a tendency to



FIG. I. Edge of deep anthrax colony showing ringlets like locks of hair; 24-hour agar plate.

disintegrate, thereby losing their characteristic appearance. Reichel[17] states that anthrax-like colonies lost their stringy appearance on repeated re-cultivation while pure anthrax does not. It has been the experience of Eurich[15] of the Bradford Anthrax Investigation Board in Yorkshire, England, that the deep colonies are much more characteristic than the surface colonies and in this respect our observations bear him out fully. As Eurich states, this fact seemed to have escaped the German workers on anthrax. Lehmann and Neumann's "Atlas of Bacteriology," Vol. 1, shows an unsatisfactory sketch of a deep colony. A sketch somewhat simulating a deep colony also appears in connection with an article on anthrax by Reichel.[16] These deep colonies can be characterized as having the appearance of gonorrheal shreds in a urinary sediment. They should be searched for in a 16- to 24-hour plate with a low-power objective, under a magnification of about 50 diameters. Very often one finds elliptical, slightly brownish bodies or disks interwoven with the threads. The deep colonies are never round but usually show irregular threads branching off from the center in different directions. Even the macroscopic appearance of the deep colony is much more



FIG. II. Deep anthrax colony showing ringlets; 24-hour agar plate.

"fuzzy" than that of the surface colony. It is hardly likely that these deep colonies have been overlooked by the previous observers. It is certain, however, that these observers did not attach to these colonies the diagnostic importance which they deserve until Eurich called attention to this fact. When true anthrax is present it does not appear to be difficult to ob-

tain deep colonies; they are usually plentiful and the appearance of such a plate is characteristic. Deep colonies often crop out to the surface and the filaments on the surface show the stringy Medusa-head appearance. One may well compare the microscopic appearance of a surface colony to a well-groomed coiffure and that of a deep colony to an untidy one. The deep colonies also change on exposure



FIG. III. Similar colony focussed at surface level. The skein-like structure of the superficial colony is visible. The skeins may be seen in many colonies not anthrax, but the ringlets of deep colonies are characteristic.

as do the surface colonies but the change does not take place as rapidly. It often happens that the plate fails to reveal the organism while the animal inoculation proves positive. In such a case a pure culture can be obtained from the spleen, heart, or kidney provided the animal died of anthrax. No test should be regarded as conclusive without complete proof of cultural characteristics, morphology and virulence. Microscopically there are many organisms which simulate anthrax and this, coupled with the fact that anthrax often develops atypically, makes it difficult to make a diagnosis from the morphology of a stained preparation alone. The capsulated thick rod from the spleen of the test animal has been obtained in the three cases in which isolation from the shaving brushes has proven successful. This capsulated appearance is characteristic and we have not noted it in artificial cultures. Fairly long chains have been observed rarely except in artificial cultures. Spore formation is shown best on agar. Under low magnification the spores may give the colony a dotted appearance. One word may be said about the gelatin and bouillon cultures. It is known, and it has been noted in connection with this investigation, that the fur-tree growth in gelatin is not always characteristic, and, as a matter of fact, may not appear typically at all. With the three strains isolated from American shaving brushes the growth in bouillon has been found to be of greater differential value than the gelatin growth.

The high resistance of the human organism to superficial infection with anthrax is indicated by the fact that, in spite of numerous infected brushes being in use, no civilian case of anthrax from this source has been reported to the Federal authorities. It is of course possible that a few cases have occurred but have not been recognized as promptly as in the military camps.

To prevent infection from brushes of uncertain origin, it is advised that such brushes be soaked for four hours in a 10 per cent solution of formalin (the solution to contain approximately 4 per cent formaldehyde) at a temperature of 110° F. and so agitated as to bring the solution into contact with all portions of the hair or bristles.

To obviate the manufacture of infected hair and bristles into brushes, the follow-

ing amendments have been added to the Interstate Quarantine Regulations.

"SEC. 39. No person, firm or corporation shall offer for shipment in interstate traffic, and no common carrier shall accept for shipment or transport in interstate traffic any shaving brush or lather brush unless manufactured in accordance with these regulations."

"SEC. 40. Shaving brushes or lather brushes shall be made only from hair or bristles known to be free from anthrax spores."

"SEC. 41. Unless hair or bristles are known to be free from anthrax spores before such bristles are made up into shaving or lather brushes, their disinfection shall be accomplished by one of the following methods: (a) by boiling the hair or bristles for not less than three hours; (b) by exposing the hair or bristles to steam under not less than fifteen pounds gauge pressure for not less than thirty minutes with a preliminary vacuum of not less than ten inches before turning on the steam; (c) by exposure to streaming steam for not less than six hours."

"SEC. 42. All shaving or lather brushes shall be permanently marked with the name of the manufacturer or with a registered trademark in order to insure identification of the manufacturer and enforcement of these regulations."

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[17] Reichel: Centralbl. Bakt. Parasitenk. 1. Abt. Ref. Vol. 50, p. 83 (1911) Fig. 3.

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TOLL OF THE DEGENERATIVE DISEASES—A PLAN FOR ITS REDUCTION.

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Read before the Section of Vital Statistics, American Public Health Association, at Chicago, Ill., December 9–12, 1918.

DURING the last fifty years the great battles of the sanitarian have been fought in the field of infectious diseases. With the growth of knowledge concerning their etiology, pathology and consequently their epidemiology, he has won most notable victories, so that infectious diseases are gradually diminishing in importance as causes of death. In the first 15 to 18 years of life the mortality has been almost halved. Coincident with this there has been a gradual rise in mortality above 43, and for the age group 45 the mortality is greater now than it was ten years ago. It is essentially at these periods of life when the metabolic processes are slowing up, when the human machine begins to show the effects of wear and tear, that vascular disease and the other so-called degenerative diseases begin to manifest themselves.

With the demand of the infectious diseases becoming less acute, workers in preventive medicine are turning their attack upon the group of cardio-renal vascular diseases. Whether these are actually on the increase or whether the rise in morbidity and mortality is only relative, the fact remains that they are among the leading causes of death and therefore, from the standpoint of preventive medicine, worthy of intensive work.

The leading cause of death in the registration area of the United States for the year 1915 was the disease group classified as "organic heart diseases and endocarditis" with a rate of 156.2 per 100,000 of population (1). The second on the list was tuberculosis (all forms) with a rate of 145.8 per 100,000. Nephritis and Bright's disease was fourth in the list with a mortality of 104.7 per 100,000. In the fight against tuberculosis, millions in money and a vast amount of energy have been expended; against the leading cause of death, intensive work is just beginning. Not that every cent in money and every ounce of energy brought to bear in the fight against tuberculosis is not well spent, but that too little effort has been directed against the degenerative diseases.

There is of course a definite reason for this situation. In the case of tuberculosis we are fairly familiar with the etiology and are beginning to appreciate the means by which infection is spread. Consequently, a fairly satisfactory method of attack has been worked out. The treatment is also much more satisfactory. The newer clinical and laboratory studies and a keener appreciation of older clinical principles offer a hopeful basis of attack in the case of chronic cardio-renal diseases, both along lines of prevention and treatment. Another factor is to be considered in this connection. The manifestations of tuberculosis are easily recognizable in the advanced stages and greatly dreaded; the degenerative diseases are more often insidious in their development.

It has been repeatedly emphasized that deaths from such diseases as typhoid fever and tuberculosis occur in the prime of life, while those from the degenerative diseases occur beyond middle age. Therefore, a life saved from either typhoid fever or tuberculosis is of much greater economic value than one saved from the degenerative diseases. If the vast majority of deaths from degenerative diseases occurred beyond 60 years the above statement would be fair, but a not inconsiderable proportion occur between 20 and 40. Prof. Irving Fisher (2) has estimated on the basis of statistical investigation that the period 17.5 to 60 years represents the average working or wage-earning period of life in the United States. Table I, taken from the United States Mortality Statistics for 1915, shows a comparison of the number of deaths from organic heart disease and Bright's disease in the registration area of the United States, and certain infectious diseases for the ages 20 to 60 by 10-year groups.

TABLE I.

	Deaths at age of			
	20 to 29	30 to 39	40 to 49	50 to 59
Typhoid fever	2,295	1,400	856	568
Tuberculosis of the lungs	22,173	19,841	14,161	9,023
Organic diseases of the heart	3,211	5,360	8,686	13,884
Lobar pneumonia	3,265	4,323	5,407	6,153
Bright's disease	1,909	3,992	7,420	11,832

From Mortality Statistics, Bureau of Census, 1915.

The largest number of deaths from typhoid fever in 1915 occurred between the ages 20 to 29, but within the same age group there were twice as many deaths from organic heart disease and Bright's disease combined.

It is true that the greatest number of deaths from pulmonary tuberculosis occur within the age group 20 to 29, while those from organic heart disease and Bright's disease fall within the period 50 to 59. The curve of mortality from pulmonary tuberculosis reaches its height at the age period 20 to 29 and after that gradually declines, because those who have survived the age of greatest incidence possess an increased resistance. The curve of mortality from the degenerative diseases reaches its maximum at the age period 70 to 79, because after 70 they become natural causes of death. All such deaths should be considered preventable, and a sufficient number occur within the period of greatest productiveness to make them highly worth saving.

Lobar pneumonia caused fewer deaths in all the age periods considered than the degenerative diseases combined. There is here a wide field for preventive work, awaiting only a practical and efficient method of attack.

That during the period past middle life the activities of the individual are on the decline, applies largely to the industrial population. Many of our most prominent men, after years of training, have become expert in their professions and valuable members of society to die of one of the degenerative diseases at the height of their economic usefulness.

Toll of the Degenerative Diseases.

1. In Lives.

It is comparatively easy to arouse the public over a disease condition which is spectacular in its manifestations. For example, a mad dog on the street invariably creates a panic followed by a vigorous dog-muzzling campaign. Especially is this true, if an unfortunate victim dies of hydrophobia. On the other hand, a disease like typhoid fever, exacting an annual toll of 20,000 lives and 300,000 cases of illness was looked upon as a sort of necessary evil, and it required years of hard fighting to arouse public sentiment to the necessity of hygienically pure water supplies.

As a basis of calculation and for comparison, we shall follow the outline of Prof. Irving Fisher (3) in his estimate of the cost of tuberculosis in the United States, and for simplicity limit ourselves to the two groups of diseases Classified in the International List of Causes of Death as "organic diseases of the heart" and "Bright's disease and nephritis."

In 1915, organic diseases of the heart caused 99,053 deaths in the registration area of the United States being the leading cause of death, with a rate of 147.1 per 100,000 of population. Bright's disease and nephritis was responsible for 70,500 deaths with a rate of 104.7 per 100,000.

The registration area in 1915 represented a population of 67,336,992 (estimated). The total population of the United States in the same year was 100,399,388 (estimated). The registration area therefore contained 67.1 per cent of the total population, or a little more than two-thirds. The death-rates from the diseases under consideration in the non-registration area were certainly greater than in the registration area, principally because communities backward enough to have incomplete registration of births and deaths are likely to live under poor hygienic conditions and have correspondingly poor medical care. Assuming that the same rate obtained throughout the country, we have an additional 33,000 deaths from organic disease of the heart, and 23,500 from Bright's disease and nephritis, or in round numbers, an annual toll in the United States of 132,000 deaths from organic heart diseases, and 94,000 deaths from Bright's disease and nephritis. No claim for absolute accuracy is made in these figures, but the error is probably on the side of conservatism.

To gain some idea of the relative proportion

of mortality from cardio-renal diseases and other causes of death, Table II shows the number of deaths in the United States registration area for the year 1915, from organic heart diseases and from Bright's disease and nephritis, compared with the number of deaths from certain well-known acute infectious diseases against which a large share of sanitary effort is directed. The chronic degenerative diseases caused five times as many deaths as typhoid fever, measles, scarlet fever, whooping cough and diphtheria combined.

TABLE II.

	Registration Area	Rate per 100,000
All causes	909,155	....
Typhoid fever	8,332	12.4
Measles	3,649	5.4
Scarlet fever	2,419	3.6
Whooping cough	5,421	8.1
Diphtheria and croup	10,544	15.7
Tuberculosis (of lungs)	82,853	123.0
Organic heart disease	99,053	147.1
Pneumonia (total)	55,825	82.9
Bright's disease	64,480	95.8

From Mortality Statistics, Bureau of Census, 1915.

The figures show that there were in 1915 almost 25,000 more deaths from chronic degenerative diseases than from tuberculosis of the lungs and pneumonia combined. The death-rate from organic heart disease exceeds that from pulmonary tuberculosis, while Bright's disease exceeds pneumonia (all forms). Tuberculosis of the lungs was responsible for about 9 per cent of all deaths; pneumonia about 6 per cent. Organic heart diseases constitute about 19 per cent of the total deaths and Bright's disease 7 per cent, making a total for both of 26 per cent compared with 15 per cent from tuberculosis of the lungs and pneumonia.

In an analysis of the death returns in New York City for 1914, Wynne and Guilfoy (4) found that of all occupied persons 15 years and over (both sexes), organic heart disease caused 17.9 per cent of all deaths. Bright's disease was responsible for 9.4 per cent. The degenerative diseases, including cerebral hemorrhage and apoplexy made up about 30 per cent of the entire mortality. Pulmonary tuberculosis caused fewer deaths than organic heart disease, the total number being 8,597 as compared with 9,616 or 16 per cent as against 17.9 per cent. Taking the group as a whole, the comparative mortality is 16 per cent as against 30 per cent or a little more than half. There is little reason to doubt that the conditions in New York are representative of those throughout the country. Chart 1, based upon the table given by Wynne and Guilfoy, shows in a graphic way that the greatest mortality from the degenerative disease occurs two age periods later than that of pulmonary tuberculosis, the figures of the one being almost complementary to the other. So that while the actual number of deaths from degenerative diseases is larger than those from pulmonary tuberculosis, the economic loss is less. However, we would again call attention to the number of deaths from degenerative diseases occurring between the ages of 20 and 40. (Table I).

CHART I.

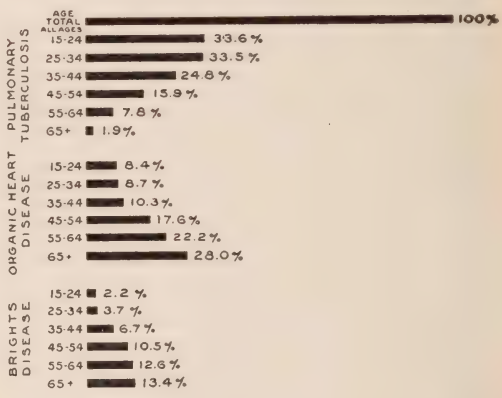


CHART 1. Showing the relative proportion of deaths from tuberculosis (of the lungs) as compared with organic heart disease and Bright's disease by age groups occurring among occupied persons 15 years and over, in New York City, 1914. Plotted from table given by Wynne and Guilfoy (*loc. cit.* in text).

2. Estimated Monetary Loss.

Although attempts to express dissipated vital capital in terms of monetary loss are beset with statistical difficulties, nevertheless they are a useful means of showing in a familiar and striking manner, losses which mean very little to the public when expressed in numbers of lives lost.

Again referring to Professor Fisher's esti-

mates of the cost of tuberculosis in the United States, we find that the average consumptive loses 21 years of working life. Since the bulk of mortality from consumption falls within the age group 20 to 39, while that from degenerative diseases is about 40 to 59, we may conservatively estimate that the average death from the latter deprives the individual of ten years of useful work. Using Fisher's estimate of $700 as the average income of working men in the United States, and basing the calculated loss on 163,533 deaths from degenerative diseases during 1915, we find a loss in earning capacity amounting to over $1,140,000,000. This does not include the actual financial loss due to medical attendance and wages during the periods of partial and total disability, which usually are long. It is impossible to even approach an estimate of the latter. Hospital statistics are not available and dispensary statistics are almost worthless.

Outline of Method of Attack.

The problem of control of disease resolves itself into an effort to remove the factors in its causation. The greatest success has attended the fight against those infections with whose etiology we are most familiar. Only recently have we obtained sufficient knowledge of the etiology of chronic degenerative diseases to place them definitely within the class of conditions with an infectious basis.

The most important factors in the production of cardio-renal-vascular disease are infections and intoxications (chemical and metabolic). Of the infections, syphilis is an important cause of cardio-vascular pathology in early middle life. The conditions occasioned by our military preparations have brought the venereal peril strikingly into the foreground, and adequate measures for its control are under way. Among non-specific infections it has been recognized within recent years that chronic focal infections are an important factor. With the accumulation of evidence, clinical and experimental, we are assuming a more rational attitude toward chronic focal infections and are realizing that in the etiology of many conditions, they are not the sole factor and represent but one link in the chain, although it may be the key link.

It has been recognized by pathologists for a long time that acute infectious fevers are not infrequently accompanied by damage to the endocardium or heart muscle or both. The etiologic relation of acute rheumatic fever and certain forms of endocarditis, especially of the mitral valve, is thoroughly established both clinically and experimentally (Billings, Rosenow). The clinical studies of Thayer (5) have demonstrated the effect of typhoid fever on the vascular system.

The pathologist is familiar with the cloudy swelling of the parenchymatous organs so frequently seen in autopsies on persons dying of acute bacterial intoxication. It seems reasonable to suppose that similar changes, less marked, occur in individuals who recover. Thus, severe attacks of "la grippe," septic sore throat or severe attacks of coryza if repeated, probably leave their mark upon the vascular system, each leaving it somewhat impaired. One attack may damage the kidneys slightly, another the myocardium, neither producing sufficient injury to cause immediate disability, but the sum of such repeated infections producing its effect about the middle period of life when the normal degenerative changes begin.

How do the bacteria in acute infectious diseases produce their deleterious effects? They reach the various tissues by way of the vascular system and damage the vessels, especially the arterioles. This leads to an interference with the blood supply to the part and a consequent lowering of the oxidizing capacity of the tissues which in turn brings about a condition of acidosis. Whether the condition becomes generalized or remains localized is determined by the severity of the infection. The severe infections are more likely to produce a lowering of the "buffer content" of the blood and a general acidosis. Chronic acidosis leads to chronic degenerative changes in the vascular system and in the kidneys as a part of this system.

It is interesting to note the changes in the conception of disease with the growth of medical knowledge. Until recently, those holding that a disease was due to metabolic disturbance carried the burden of proof. A closer analysis of the mechanism by which bacteria

produce disease has shown that a disturbance in metabolism of the body is after all the fundamental cause of all disease processes, although the disturbing agent may be bacteria.

The chemical intoxications, notably lead poisoning, have been intensively attacked by the industrial hygienist with good result.

The second great etiologic factor in producing chronic degenerative disease, and rather closely related to the first, is chronic fatigue. In a recent investigation made by the Division of Sanitation, Bureau of Medicine and Surgery, Navy Department (6), the following statement appears: "Physical fatigue from the standpoint of preventive medicine must be given careful consideration as one of the important etiological factors tending to lower blood and tissue resistance to infectious diseases, with especial reference to cerebro-spinal fever, lobar pneumonia and other coccus infections.

"Epidemiological investigations indicate that body fatigue plays an important rôle, potentially, in an outbreak of communicable disease. . . . Probably the lowering of resistance resulting from fatigue is also to be explained on the basis of an acidosis. Apparently metabolism is at its maximum efficiency when the acid-base equilibrium is normal. Any disturbance toward the acid side, in some as yet unknown way, produces conditions favoring bacterial infection. Apart from its relation to infection, chronic fatigue hastens the onset of senile changes in the vascular system, and consequently in the body as a whole.

On the clinical side, much can be done in the way of prevention. If it were possible to keep all patients with acute fevers in bed during the febrile period, much unnecessary damage to the vascular system could be avoided. Every case of tonsilitis should be in bed until the temperature is normal, and carefully watched during the period of convalescence to guard against cardiac complications. Osler long ago noted that in chorea, endocarditis was especially prone to complicate ambulatory cases and those that were physically active during convalescence. The same is true of all acute infectious fevers, any one of which may damage the cardio-renal-vascular system. Clinicians have long known that in the case of syphilis the organism may remain latent for years to manifest itself in early middle life in the form of aneurysm or cerebral-vascular disease, yet they are only beginning to realize that any organism of low virulence may produce no symptoms of active disease and yet manifest its effects later in chronic degenerative disease.

General Discussion and Summary.

The fight against chronic degenerative diseases does not imply in the least measure a letting up against infectious diseases. On the contrary every victory in the one field is also a victory in the other, for they are closely related. The degenerative diseases are the manifestations of the accumulated effects of the infectious diseases on the individual. Nor is there reason to believe that the degenerative diseases are increasing to such an alarming extent that we are in danger of undergoing physical deterioration. There is, however, a field for preventive work against the mortality from chronic degenerative diseases, especially in the age periods 20 to 40, worthy of considerably more attention than it has received.

In view of the facts we have attempted to bring out, a logical program for fighting the chronic degenerative diseases would be based upon the following:

First and fundamentally important, is the gathering and collation of such vital statistics bearing upon the subject as are available, together with a vigorous campaign for complete morbidity and mortality statistics, especially among our public institutions. It is a sad commentary on the condition of our vital statistics that the insurance companies are the only ones who possess complete records.

Second, educating the general practitioner to the possible serious consequences of mild infections. In the words of Janeway, (7) "The need for the moment, therefore, is for more knowledge; not more knowledge of the dangers of circulatory diseases for the public, which means propaganda, but more knowledge of their causes for the physician, which means ceaseless investigations." The public is largely dependent for its medical knowledge upon the physician; with the realization by the latter of the seriousness of repeated low-

grade infections and particularly chronic fecal infections, there would naturally follow an appreciation by the public of the same facts.

Third, provision for adequate medical attendance for the entire population, with appropriate sick benefits. It is well known among the medical profession that the very poor and the wealthy receive the best medical attention. The bulk of the population, the wage-earners, get the worst. Whether proper medical service be obtained by an adequate government health insurance system, or by a change in medical practice whereby people will pay for preventive medical attention, makes little difference if the desired result follows. As a corollary to this is the extension of the periodic physical examination to include the whole population. This has turned out to be an excellent investment for those insurance and industrial corporations that have adopted it.

Fourth, the elimination, as far as possible, of the factors of fatigue and various intoxications from the industries.

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The Epidemic of Influenza-Pneumonia at Camp A. A. Humphreys.—Beginning September 13 a serious epidemic of influenza-pneumonia developed at Camp A. A. Humphreys. The epidemic lasted until October 18 during which time 16 per cent of the camp had influenza and 28 per cent of the influenza cases developed into pneumonia. Of the influenza cases, 10 per cent died, but of the pneumonia cases, 35 per cent died. Most of the pneumonias were of the broncho-pneumonia type. Cases of lobar pneumonia were also reported. The population of the camp was 26,600. There were 4,237 cases of influenza and 1,171 cases of pneumonia. The total number of deaths from influenza and pneumonia was 413.

When the disease first appeared in the camp, precautions were taken to prevent its spread. The men were impressed with the seriousness of the disease and told how the virus is spread. Attention was directed against overcrowding, and the prevalence of flies. Body cleanliness was emphasized. Beds were screened from one another, and some attention was also given to the laxity in cleansing dishes. But at no time during the epidemic was the camp under quarantine and at no time were the men restricted in regard to their amusements. Fifty-two per cent of the cases occurred during the third week of the epidemic. During the second week, 22.6 per cent of the cases occurred, and during the fourth week 18.4 of the cases appeared. A study of the incidence rate with relation to overcrowding shows that as a rule, where overcrowding was absent the disease was less prevalent. One of the striking things brought out by the epidemic was that there was a decidedly lower incidence rate among the colored troops than among the white troops, in fact the incidence among the colored troops was only 43 per cent of that among the whites. But there were more complications of pneumonia among the colored troops. Pneumonia proved to be more fatal to the colored troops also. The white troops were housed in regular cantonment barracks which allowed about 50 square feet of floor space per man. The colored troops with the exception of one company, were housed in tents. At first there were six men in a tent. Later this was reduced to five.—Lieut.-Col. I. W. Brewer, *Journal of Laboratory and Clinical Medicine*, December, 1918.

(*M. P. H.*)

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Typhoid Carriers.—The danger of typhoid carriers among food handlers is seldom better illustrated than by the history of an outbreak in September, 1917, of sixty-five cases of typhoid along a certain milk route on Staten Island, New York. A thorough investigation of the source of the milk supply failed to reveal the origin of the infection and furthermore other points to which the same milk was shipped had entirely escaped the disease. Careful inquiry developed that one of the persons employed by the firm distributing the milk had two active cases of typhoid in his family and that he came into intimate contact with these patients. The individual concerned was immediately forbidden to engage in any food handling occupation and inasmuch as the milk supply was not at fault, permission was given to resume distribution which had been stopped the moment the supply came under suspicion. The outbreak was very shortly checked.—*Bulletin N. Y. C. Department of Health.* (*M. T.*)

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THE MEETING AT NEW ORLEANS.

The next meeting of the American Public Health Association is to be held at New Orleans on October 6 to 9, 1919. This Southern city, which patriotically waived its claims in response to war needs, will this year have the meeting that was scheduled for 1917. The breaking out of the war made it desirable to concentrate in consultation in the National Capitol the health forces of the country and the continuance of the war was the reason for calling the meeting of 1918 in that other center convenient to so large a proportion of the leading health advisers, Chicago.

There are many reasons why New Orleans is an admirable place in which to gather the public health administrators and officials. In the first place, it has one of the oldest boards of health in the country, regularly organized in 1822, with a printed report as early as 1849. In those days it was necessary to have an outbreak of disease to awaken public spirit to the need of even the most fundamental of health measures. Yellow fever was an insistent cause and was the underlying reason for the creation of the New Orleans board; just as, about half a century later, an outbreak of smallpox was the entering wedge for the establishment of the Boston Health Department as a body separate from the City Council.

New Orleans has further claim for a meeting of the association in the fact that it is the principal city in a section of the country that has become exceedingly active in health administration. Handicapped with an insanitary negro factor to its population, of large numerical importance, the South has had a difficult career in the fighting of sickness and deferring of death. With a warm climate, a population largely barefooted and without even rudimentary ideas of home sanitation or personal hygiene, and with soil and other conditions favoring bacteriological activity, it has had an enormous burden, which in these latter years it is shaking off in extraordinary fashion.

A meeting in New Orleans will have for an important subject the consideration of malaria, the developments of the year concerning influenza will also be brought out while the question of unification of health societies will make the third in a trinity of subjects of prime importance to the public health world.

In recent activities towards the health education of the people, the group of Gulf States has been notable. Louisiana has had its railway car health exhibits, and New Orleans its enormous recent developments in rat-proof construction and other public

improvements in sanitation. Texas has taken up the matter of health education through its boards of trade and other public organizations, while Florida, the portal at which the diseases of the Tropics are constantly knocking, has in recent years steadily maintained the standards set for it by its sterling early health officers.

The meeting at New Orleans promises much in the way of sanitary education, not only for the district, but for the rest of the country.

New Orleans has further than this a splendid reputation for its ability to entertain visiting parties. The festivities which mark the opening of spring and other occasions have given it unusual opportunities to care for visitors, whom it treats with open-hearted Southern hospitality. It is true that the association is a body that is strictly attentive to the purposes that bring it together, but there will be nevertheless plenty of chances to take advantage of the good things New Orleans is already planning to offer.

At New Orleans a special effort will be made to carry with the association the annual meetings of other societies of kindred interests, so that in October one may look for a great convention of officers, executives, commissioners and health lovers more important than has ever been gathered at any previous meeting of the association. Mark October 6–9 at New Orleans with red ink in your attention file or office tickler! R.

PUBLIC HEALTH DEPENDS ON YOU AND ME.

It is absolutely true that public health depends on you and me, for the keynote is personal hygiene. Disease prevention in any community rests ultimately on the average man and woman. The community may establish hospitals and clinics for the treatment of tuberculosis, but these agencies will be successful in only limited degree unless the average man practices personal hygiene and takes care to prevent the possible communication of this disease from himself to his family and friends. The community, through its health regulations, may ensure a milk supply safe from typhoid infection, yet the disease cannot be stamped out so long as patients or "healthy carriers," with unwashed hands prepare and handle food to be consumed by others.

That personal hygiene is the keynoté of modern sanitation is especially true in respiratory diseases. We have not yet learned how to prevent outbreaks of colds, bronchitis, pneumonia and influenza, but we do know that their spread could be checked if the principles of personal hygiene were universally practiced. At the present time the hope for control of many diseases, which are important among the causes of death, rests with the individual.

In the current epidemic of influenza, there is a great deal that we do not know about its causes and the details of its methods of spread. It is reasonably certain, however, that it is communicated from the sick to the well through methods of contact which effect the exchange of nose and throat discharges. It was Professor Sedgwick who reduced prevention of typhoid to its simplest expression by saying, that it is merely necessary "to keep the bowel discharges of A out of the mouth of B." In influenza it is likewise true that prevention will find a most substantial foundation if the oral discharges of A can be kept out of the throat of B. If this is to be done at all, it must be largely through the care taken by the individual in what is termed, "respiratory hygiene." The responsibility lies with the individual. It is his duty towards his neighbor, on the part of the infected man, to prevent the scattering of his germs among his fellow men; it is his duty to himself on the part of everybody, to guard the portals of entry of his body against the microbes of others.

This is very easy to set down for a principle, but the practice is the great problem that confronts health administration everywhere. It is a problem that is to be solved only with the coöperation of the individual. It is the more important to have this distinctly understood since its sphere of prevention is not limited to influenza, but includes a long list of common infections, which are all of them preventable diseases.

Public health officers must never forget the importance of the sanitary education of their people, while the individual must realize his own far greater responsibility. When the slogan, "Public health depends on you and me," is accepted and acted on, the first great step towards prevention will have been taken.

Donald B. Armstrong, M. D.

COÖRDINATION OF NATIONAL HEALTH SOCIETIES.

The January issue printed an address read at the Chicago meetings by President Vincent, of the Rockefeller Foundation. Doctor Vincent deplored the amount of unrelated public health propaganda. He pointed out that there are fifty-seven national societies which carry on health activities. Unlike the famous fifty-seven, however, the products of the former do not come from unified establishments and bear no standardized label. He showed that the lack of coördination resulted in overlapping and lowered efficiency and higher operating cost. But a more serious objection in his mind was that the existence of a large number of specialized and unrelated units resulted in the lack of a general coördinated plan. Some phases of public health work were greatly over-emphasized while others were neglected. At times the existence of a special society would lead to the belief that its field was being properly covered and discourage the proper development of the field in question.

Any person who has the interest of public health at heart will recognize the present chaotic condition of the field and the need of better team-play for public health.

To this end Doctor Frankel, president of the American Public Health Association, will ask the presidents of the various health societies to appoint delegates to a conference to be held at Atlantic City, New Jersey, early in June. The National Conference of Social Workers meets in that city June 1–8 and the American Medical Association June 9–13. It is expected that the various societies will be well represented.

The association is likewise issuing invitations to the national societies which conduct conventions to meet in coöperation with the American Public Health Association in New Orleans in October. Doubtless joint meetings can be arranged which will emphasize the advantages of unification from the convention standpoint.

In calling these meetings the American Public Health Association presents no specified plan, feeling that it is better to have the conference itself develop a program than to have any one society present a plan. A. W. H.

NEW CONSTITUTION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

Following the editorials in this issue is found a revised constitution of the association as adopted at the Chicago meetings. The Executive Committee has expressed the hope that all members of the association familiarize themselves with this. The gist of the more important provisions follows:

The object of the association is to protect and promote public and personal health. Persons and organizations in the United States and countries and islands adjacent thereto are eligible to membership.

The governing body of the association is the Board of Directors which consists of representatives elected by the association and by affiliated state health societies. The terms of directors are for three years and expire in rotation.

Membership is of five kinds: (1) Members; (2) Associate members; (3) Honorary members; (4) Corporate members; (5) Sustaining members.

Active members pay $5 per year and receive the JOURNAL and full association privileges. Associate pay only $1. This membership was established for members of state health organizations who did not desire the JOURNAL. The corporate and sustaining memberships bear minimum dues of $50 each and enable those who wish to contribute to the support of the association to do so.

The Executive Committee, of which the president, treasurer, and secretary are members, conducts the executive work of the association.

The revision of the constitution grants very broad powers to the Board of Directors, including the election of the officers, the determining the time of meetings, and the adoption of fundamental policies. The general membership of the association is, therefore, relieved of the tedium of discussing and settling business policies which require careful thought, some specialized knowledge, and time, which can be with difficulty spared from the scientific meetings.

Experience showed that whereas the election of the Advisory Council consumed much time and energy, that body did not function very well. Therefore, the Advisory Council was abolished and the election of officers placed in the hands of the Board of Directors, which, being a continuous body, can choose more logically than an emergency body elected for the purpose.

It was felt best to facilitate amendments to the constitution and by-laws. Therefore, amendments to the constitution instead of having to wait more than a full year may now be made by the Board of Directors after a notice published thirty days or more before the annual meeting at which action is to be taken. The by-laws may be revised at any annual meeting after twenty-four hours' notice.

With its new form of government the association will be able to function more smoothly and efficiently than before.

With this introduction the reader is referred to the constitution itself which is short and easy to read. A. W. H.

HONORS TO CAPTAIN GUNN

Reports from Paris note that Dr. Livingston Farrand, director of the health education campaign and anti-tuberculosis work in France, has been made an officer of the Legion of Honor, while Selskar M. Gunn of Boston, former secretary of the American Public Health Association, and Alexander Miller have been made Knights of the Legion of Honor.

Professor Gunn was born in London, in May, 1883, and was graduated at Kensington Park College in 1900. At the completion of his studies he came to this country and entered Massachusetts Institute of Technology, from which he received the degree of S. B. in 1905. Since that time he has been a prominent figure in varied lines of health work. During 1905 and 1906 he was bacteriologist for the Boston Biochemical Laboratory, going thence to Iowa as bacteriologist of the State Board of Health and lecturer in the University of the State of Iowa. Next he was appointed health officer at Orange, N. J. Since 1911 he has been in Boston. He was assistant and afterwards associate professor of bacteriology at the Massachusetts Institute of Technology, and in addition during 1912–1914 held the same position at Simmons College. Meanwhile he was secretary of the American Public Health Association and editor of the JOURNAL, from which position he went to France in 1917. He was also, for a period, director of Public Health Education for the State Board of Health of Massachusetts, delivering many lectures throughout the state. He served in 1912 as assistant secretary-general of the Fifteenth International Exposition of Demography and Hygiene and incidentally has been a member of many important health bodies and committees.

His work in France has been in connection with the International Health Board, the Red Cross, and the French Government, in introducing American methods adapted to the psychology of the country, in the interests of anti-tuberculosis work and the lessening of infant mortality. Those returning from France give him the title of captain and accord to his work the highest praise. R.

INCORPORATION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

One of the important matters of special business transacted at the meeting in Chicago was the formal acceptance by the association of incorporation under the laws of the Commonwealth of Massachusetts. This will place the American Public Health Association on a footing quite different from that of the past since it is now legally entitled to receive gifts or bequests. There will now be the opportunity for those who are interested in the advancement of public health and of public health education to make their interest active and effective through contributions to the important matters relative to the health of the people that the Association is developing and will continue to develop as the need for them is made evident.

PROCEEDINGS OF THE FORTY-SIXTH ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION AT CHICAGO, ILL., DECEMBER 8–12, 1918.

Constitution and By-Laws.*

ARTICLE 1.
Name.

The name of this Association is The American Public Health Association.

ARTICLE 2.
Object.

The object of this Association is to protect and promote public and personal health.

ARTICLE 3.
Membership.

All persons and organizations in the United States of America, the Dominion of Canada, the Republic of Mexico, the Republic of Cuba, and other American nations, in sympathy with the object of the Association, are eligible to membership; provided, that honorary members may be elected without regard to place of residence.

ARTICLE 4.
Officers.

The officers of this Association are a president, three vice-presidents, a secretary, and a treasurer. The president, vice-presidents, and treasurer shall be elected by the Board of Directors, and shall serve from the close of the annual meeting at which they are elected until the close of the next annual meeting, and until their successors are elected and qualified. The secretary shall be elected by the Board of Directors, and shall serve for such term as it may specify.

ARTICLE 5.
Administration.

Board of Directors. The affairs of this Association shall be administered by a Board of Directors, consisting of the officers, all ex-presidents, one member designated annually by each section, fifteen directors elected by the American Public Health Association at the Annual Meetings, and directors elected by the affiliated societies of the several states of the United States, the several provinces of Canada and the several states of Mexico and Cuba, and other countries represented in the American Public Health Association. The number of the directors elected by the Affiliated State Societies and by the Association shall not exceed one hundred and fifty. It shall be the duty of the Board of Directors at each Annual Meeting to fix the number of directors and also to apportion among the states and provinces on the basis of the memberships of the respective societies, the directors to be elected by such societies. The directors shall be elected for a term of three years each. Five directors shall be elected from those in attendance at each Annual Meeting of the Association, each for a term of three years.

ARTICLE 6.
Meetings.

Meetings of the Association shall be held at such times and places as may be directed under the by-laws.

ARTICLE 7.
Saving Clause.

This constitution shall take effect immediately upon its adoption by the Association, but it shall not be construed to invalidate any act of the Association, or of any officer or committee thereof, done in accordance with the preceding constitution prior to or pending organization under this constitution. All officers, including directors, serving at the time this constitution is changed shall continue in office until the expiration of the terms of office for which they have been elected.

ARTICLE 8.
Amendments.

This constitution may be amended by a two-thirds vote of the members of the Board

* As amended at this meeting.

of Directors present and voting at an Annual Meeting: provided, that the call for such meeting shall have specified the particular amendment which is to be acted upon, and provided also, that no amendment shall be acted upon unless printed or written notice shall have been mailed or otherwise given to every member of the Board not less than thirty days before the beginning of the Annual Meeting at which it is to be acted upon.

By-Laws.

ARTICLE 1.

Membership and Dues.

Section 1. Membership is of five kinds: (1) Members; (2) Associate members; (3) Honorary members; (4) Corporate members; (5) Sustaining members.

A *member* is a person who has been elected to membership in accordance with the by-laws, who is an active worker in the conservation of health, and who conforms to the constitution and by-laws of the Association. An *associate member* is a person interested in the conservation of health, who has been elected to associate membership in accordance with the by-laws, and who conforms to the constitution and by-laws of the Association. An *honorary member* is a person elected to membership of that class, by the Association for distinguished service to the objects for which the Association stands. A *corporate member* is a firm or corporation not engaged primarily in the conservation and promotion of public health, which has been elected to membership of that class by the Association in accordance with the by-laws. A *sustaining member* is a person who has been elected to membership in that class according to the by-laws.

Section 2. The dues of members are $5.00 a year; of associate members, $1.00 a year; corporate members and sustaining members, not less than $50.00 a year. Honorary members pay no dues. Dues are payable in advance.

Such part of each member's dues as may be determined by the Executive Committee shall be considered as payment of his subscription to the *American Journal of Public Health*.

The dues of associate members shall be collected through the local affiliated societies. Such associate members are not entitled to the *American Journal of Public Health*. The publications of the Association other than the *American Journal of Public Health*, to which the associate members are entitled, shall be determined from time to time by the Executive Committee.

ARTICLE 2.

Board of Directors.

The planning of the work of the Association, the management of the Association and its properties, the election of officers and committees, the apportionment of directors among the several affiliated societies, the establishment of rules setting forth conditions of membership in societies, the observance of which shall be necessary for affiliation, and all other matters relating to administration of the affairs of the Association, shall be vested in the Board of Directors, except as herein otherwise expressly provided.

The president of the Association shall be the presiding officer of the Board of Directors, and the secretary of the Association its secretary. The president, vice-presidents, secretary, and treasurer shall be ex-officio members of the Board. Ten directors shall constitute a quorum.

ARTICLE 3.

Executive Committee.

There shall be an Executive Committee consisting of nine members, of whom six must be directors at the time of election. The president, secretary, and treasurer shall be ex-officio members. The six elective members shall be chosen for a term of three years each, but all terms shall be so arranged that two members shall be elected at each Annual Meeting.

The executive work of the Association shall be performed by the Executive Committee; provided, that in the interim between meetings of the committee, the president, secretary, and treasurer shall perform the executive work generally perteaining to their offices. Four members of the Executive Committee shall constitute a quorum.

ARTICLE 4.

MEETINGS.

There shall be at least one stated annual meeting of the Association, held at a place to be fixed by the Board of Directors. The time of the meeting shall be determined by the Executive Committee. Other meetings of the Association may be called by the Board at such times as it deems proper.

ARTICLE 5.

AMENDMENTS.

These by-laws may be amended by the vote of not less than two-thirds of all the members of the Board of Directors present and voting at any session of the Annual Meeting, the call for which session specifying the particular section to be acted upon shall have been made not less than twenty-four hours prior to the session at which action is to be taken.

RESOLUTIONS

Adopted at the General Sessions, American Public Health Association, Chicago, Ill., Thursday afternoon, December 12, 1918:

Resolved, That it seems desirable that a Section on Child Hygiene, School Hygiene and Dental Hygiene be established so soon as it appears that a sufficient number of members interested in such work make known to the directors the same through their formal application for the same, in keeping with the By-Laws.

Resolved, That it will be to the interest of the public health and to officers of the American Public Health Association if all health associations take advantage of the "Four Minute" method of having health problems presented to the public through meetings called in their several communities for such purposes.

Inasmuch as by the cessation of the war certain army cantonments, ammunition villages and training camps will not be required for war activities or other government purposes, and as many of these would be adapted to public health purposes for the prevention and cure of certain diseases, notably tuberculosis.

Be it resolved, That a committee from the Association be appointed to wait upon the Government, the War Department and the United States Public Health Service to urge the desirability of selling or leasing such buildings to any state or municipal authority for health purposes on conditions approved by the Government, and if necessary that legislation be passed to bring about such a result.

WHEREAS, The War Department, with the coöperation of the United States Public Health Service, at the army camps and in sanitary zones immediately surrounding them, in providing an adequate pure water supply, a complete system of sewers and drains, thoroughly demonstrated the value of these primary health measures in protecting the health and increasing the efficiency of our military forces.

Therefore, be it Resolved, That the American Public Health Association express to the War Department and the United States Public Health Service, its recognition of the splendid work accomplished jointly by them, and

Be it further Resolved, That the attention of Federal, State and Municipal authorities, when considering the resumption of public works, be called to the importance of a pure and adequate water supply, a complete system of sewers and sewage disposal, and the removal of garbage and dry wastes, as a primary public health measure in the prevention of disease, safeguarding human life and increasing human efficiency of the civil population, with a consequent added prosperity, and that they take steps in those states and communities where they are coöperating with the health authorities to encourage and, where necessary, assist in the construction of such works.

Resolved, That letters of thanks be transmitted by the Secretary:

To the Health Commission of Chicago, and members of the Chicago Department of Health, Police and other departments, for their generous and untiring efforts to insure the success of this meeting of the American Public Health Association, and for the constant courtesies of their officers.

To the Chicago Association of Commerce for its generous financial aid in providing for the success of the meeting and the entertainment of its members.

To the President and members of the Chicago Medical Society, and through them to the profession of the city, for their interest in the work of the Association and the courtesies extended to its members.

To Swift & Company for their generous entertainment extended to the members of the Association.

And especially to the daily press for the many and varied courtesies extended to the association, but especially for the splendid reports of the various meetings for the benefit and education of the public, and

To Messrs. Carey, Orr and DeBeck of the *Tribune* and *Herald-Examiner* for cartoons.

That the thanks for the association be given to the exhibitors of scientific and sanitary apparatus for the interest they have shown in the interests of the association.

Resolved, That in future section meetings on Public Health Administration there be included papers and reports from Departments of Health, officials, and others affiliated with that organization, dealing with the preparation of their budgets, the showing and procedure necessary thereafter in that behalf, the attitude generally of the granting bodies as to providing sufficient funds therefor, the ratio between these funds and the condition of public health; the funds per capita provided within the jurisdiction of these departments and such other data and information pertaining to this subject as may be available.

Resolved, That an active program of education of state, county, and municipal legislative and executive officials be inaugurated and carried out.

Resolved, That this body recommend, and in every way use its influence to secure state legislation that will place a minimum of 50 cents per capita of population annually in the budget of the Health Department.

INFLUENZA DISCUSSIONS.

INFLUENZA was the dominant subject for consideration at the Chicago gathering as it very properly should be. On the first day of the meeting the Executive Committee named an Editorial Committee to prepare a working program with reference to the disease, the report of which is the Influenza Bulletin, published in Chicago within forty-eight hours of the close of the meeting. This has been the most helpful group of statements that has thus far been published. The public health administrators of the country owe a debt of gratitude to this committee and to the group of generous Chicago citizens who furnished the fund which made instant publication possible. The Influenza Bulletin bears the date of Friday, December 13, the day following the close of the meeting.*

* This Bulletin has been reprinted in the January issue of the JOURNAL.

Influenza and allied subjects constituted the main topics for discussion at four sessions, general and sectional. An abstract of the work at these sessions follows, together with some of the shorter communications on the subject. The regular Proceedings of the Association will be given in later issues of the JOURNAL.

TUESDAY MORNING JOINT SESSION OF LABORATORY AND PUBLIC HEALTH ADMINISTRATION SECTIONS.

The Laboratory joint session saw the presentation of two very important papers, those of Dr. W. H. Park and Dr. E. C. Rosenow. The former finds place in this issue of the JOURNAL, and an abstract of the latter.

In the discussion of Doctor Park's paper, Dr. E. C. Jordan of Chicago called attention to the age

group in this epidemic, more than 60 per cent of the mortality lying in the ages between twenty and forty against 8 or 9 per cent in the outbreak of inter-epidemic years. "This fact," said Doctor Jordan, "indicates a radical difference in the causal agent of this pandemic. . . . That being the case, where we find a similar picture in the true respiratory tract infections, it seems fair to suppose that neither Pfeiffer's bacillus, the pneumococcus, or varieties of streptococci are responsible for these outbreaks." Doctor Jordan commented further on the fact that different sections of the country had different bacterial findings. "My own feeling about the whole situation, and it is a surmise, is that we have in cases of pandemic influenza an infection with an unknown or generally unrecognized virus which increases the susceptibility of the individual normally to infection with the various pathogenic respiratory tract organisms, and that superimposed on this initial infection we have a variety of secondary infections."

Dr. J. W. Nuzum of Chicago spoke of the conditions in his city. Between September 23 and October 29, more than 2,000 patients were admitted to the Cook County Hospital, with a fatality of 31 per cent. Influenza bacillus was recovered in 8.7 per cent of the cultures, pneumococci of various types were the predominating organisms throughout the cultures, both from life and from autopsies. The scarcity of bacterial flora in the nose and throat, particularly at the beginning of the disease was striking. Dr. Nuzum noted that a vaccine had been prepared from the various types of pneumococcus and about half a million doses were distributed to points in the Far West, but no report could be made as yet on the efficacy of this work. In closing his discussion the speaker referred to the frequency of empyema in these cases, the predominating organism being the hemolytic streptococcus, a late invader, and questioned what should be the proper procedure in such cases.

Dr. William R. Stokes of Baltimore spoke of the findings in his city, namely, streptococcus, pneumococcus types 2 and 4 and the influenza bacillus in 10 per cent of the cases, both at autopsy and in the sputum.

Dr. Milton J. Rosenau of Boston outlined some of the early experiences in the East where the first demonstrations tended towards implicating the bacillus of Pfeiffer, which was recovered in 83 per cent of the cases examined. This impression has now been seriously undermined by observations in other parts of the country and by subsequent work in Boston. Dr. J. O. Cobb of Chicago noted that government sanatoria proved to be no sanctuaries, patients dying just as promptly there as elsewhere. His observations dealt with Fort Stanton, N. M.

Doctor Park closed the discussion, in which half a dozen other speakers took part.

In his paper entitled, "Prophylactic Inoculation in Pneumonia and Influenza, Preliminary Report," Dr. E. C. Rosenow waives the question of lack of identification of the causative organism in influenza, and goes at once to a discussion of the results obtained from vaccines from strains freshly isolated from the sputa and lungs in about the proportions in which they are found. Since in the progress of the epidemic there has been evidenced a decided change in the bacterial flora, new strains were added to keep pace with the changes in so far as possible.

Doctor Rosenow notes the presence in smears and cultures of what appears to be a distinctive streptococcus, Gram-positive and lanceolate, occurring singly at times, but more often in rather long chains. He describes the organism, notes that hemolytic streptococci were found next most frequently, and outlines the minor rôle of *Staphylococcus aureus* and the influenza bacillus. He gives the formula used in the preparation of the vaccine, the technique of manufacture and the dosage. He presents also in tabular form the incidence of illness and mortality of a large group of persons.

The conclusions reached by Doctor Rosenow are that, "by the use of a properly prepared vaccine it is possible to afford a definite degree of protection particularly for nervous individuals, including pregnant women, during an epidemic of influenza."

In discussing the paper Dr. George W. McCoy of Washington spoke especially of the difficulty of getting satisfactory data. He adduced some evidence opposing the views of Dr. Rosenow and concluded that reliance could not be placed on vaccines for protection. He advised, however, not to take too pessimistic an attitude and cited the difficulties before typhoid inoculation became successful.

Dr. Timothy Leary of Boston spoke of the autogenous vaccine developed at his laboratory. Although reports have been received that are distinctly favorable and data are gradually accumulating, they are not as yet in sufficient quantity to warrant final conclusions.

Dr. F. O. Tonney of Chicago spoke of the vaccine as used in his city, but noted that the general returns from physicians are unsatisfactory for evidence because they can be compared only with general case rates and mortality rates at large in the city. He offered "for whatever they may be worth" some favorable figures, but said that they were incomplete.

Dr. J. J. Moore of Chicago varied the discussion by asking what might be known of prophylactic immunization against the streptococcic group. Dr. W. O. Sherman of Pittsburgh, spoke of the

psychic benefit of prophylaxis, and stated that taking the benefit of the doubt and the possibility of the hopeful mental attitude that would result, he had vaccinated 150,000 to 200,000 employees in munition plants, mines, steel establishments, together with members of their families. He agreed with Doctor Rosenau that it is still too early to analyze the internal situation but stated some favorable results agreeing with other speakers on the difficulty of the problem.

Admiral E. R. Stitt of Washington spoke briefly on the incidence at Paris Island and Quantico and their relationships, while Col. V. C. Vaughan gave especial attention to the pneumonia phase of the problem in what proved to be almost a paper by itself. The JOURNAL hopes to print this in a later issue.

Dr. Woods Hutchinson of New York City, speaking as an "innocent bystander and not a scientific expert," expressed the opinion that Doctor Leary was "far too modest" in his claims for his own good. He noted a fact with reference to reports from institutions in Massachusetts, that these people were largely deficients and it is not fair to use them in comparisons.

Dr. B. Franklin Royer of Harrisburg, Pa., spoke of the necessity of accurate statistics and controls and other speakers touched on different points of this very complicated matter.

In closing the discussion, Doctor Rosenow pointed out deficiencies in the bacteriological study of the sputum and emphasized the fact of the necessity for action, even with the data not fully determined instead of "watchful waiting" under such circumstances as the existing epidemic. He called attention to the changing phases of the disease and asked for coöperation of every one towards the study of the cause of the disease.

TUESDAY EVENING GENERAL SESSION.

The general session of Tuesday evening, December 10, had for its topic, "Organization of Forces against Influenza." There were two regular papers, that of Dr. M. Nicoll, Jr., of Albany, N. Y., who spoke in place of Dr. Hermann M. Biggs, and the joint one of Col. Charles Lynch and Lieut.-Col. James G. Cumming, of Newport News, Va., on "The Rôle of the Hand in the Distribution of Influenza," both of which are presented in this issue of the JOURNAL. Doctor Nicoll's paper was an epitome of what is known about the disease. Dr. W. C. Woodward of Boston noted seven measures of protection adopted in his city: reporting, use of masks, vaccines, hospitalization, restaurant regulations, restriction of crowding, and education of the people. Dr. W. O. Sherman of Pittsburgh spoke of the work at the Lord of Guy's Hospital, London, where 1,000 New Zealand soldiers were inoculated in an effort to immunize them against infections of the upper respiratory tract. A mixed vaccine similar to that of Rosenow was employed. The results were that among vaccinated troops 2 per 1,000 developed influenza, while among unvaccinated controls the rate was 28. He thinks there is sufficient evidence to believe that there is virtue in vaccines in reducing the severity of the disease.

Dr. John Dill Robertson of Chicago outlined the policy of his city as including the closing of many places of amusement so as to give the people more sleep. He believes in sleep as "the greatest regenerating agent known to mankind." The better class of theaters were not closed because the ventilation was good and such places were used for centers for public education regarding the disease. Dr. H. O. Jones of Chicago followed Doctor Robertson, his topic being the policy in Chicago of keeping open the schools. His discussion finds place in the January issue of the JOURNAL.

Dr. Royal S. Copeland of New York City spoke of the care with which children in the public schools were watched and how those with any symptoms of the influenza were separated from the others till they could be examined by the nurse or doctor, and if infected, they were sent home with follow-up by the health department. This measure is believed to have been effective in preventing the spread of the disease. Motion picture shows were closed but the first-class theaters were kept open and used for centers for the health education of the people.

Dr. A. J. McLaughlin's paper on the "Organization of Federal, State and Local Health Forces" followed; it is presented in this issue of the JOURNAL. In the discussion Dr. Louis I. Harris argued that the 300,000 deaths from influenza showed the need for just such reorganization as was emphasized by Doctor McLaughlin, while Dr. A. Augustus O'Neill of Chicago corroborated the opinions of Doctor Jones as to the importance of keeping open the schools.

"The Work of the Illinois Influenza Commission," for which see the January issue of the JOURNAL, was presented as the last paper of the session by Dr. C. St. Clair Drake of Springfield, Ill., in the discussion of which Dr. Owen J. Mink of the Great Lakes Training Station, Ill., outlined the incidence and mortality of influenza in the military camps. These followed typical curves. There was an explosive onset for about five days and in two weeks the epidemic had had its run. Experience with the mask was not encouraging. Two types of the disease developed at the Station, one the regular winter form and the other a severe type accompanied with pneumonia. Dr. J. O. Cobb urged the American Public Health Association to use its influence to-

wards larger appropriations, so that more vigorous measures could be adopted for the prevention of the spread of the influenza.

Wednesday Evening General Session with Chicago Medical Society.

At the joint meeting with the Chicago Medical Society on Wednesday evening, December 11, at its home, 25 East Washington Street, the various treatments received attention. Lieut. Frank W. Hartman, M. C., U. S. N., spoke formally with reference to treatment of influenzal patients with plasma of convalescent patients. The text of this article appears in the Journal of the American Medical Association for January 4. It outlines the condition in Washington where the U. S. Navy has treated not only the officers and their families and the enlisted personnel, but also civilian employees. Up to December 8, 525 cases of influenza were treated at the Naval Hospital, 27.5 per cent coming in with pneumonia or developing it within the hospital. Two factors are believed to have aided materially in keeping the mortality low during the first few days, digitalis and venesection. Isotonic glucose and sodium bicarbonate intravenously used and massive doses of camphorated oil were each given in a series of cases without beneficial results. Pfeiffer's bacillus was grown repeatedly from sputum, lung puncture and autopsy material, but never from the blood stream.

At the height of the epidemic the suggestion came from the Chelsea Hospital at Boston (U. S. N.) with reference to the value of serum from convalescent patients.* Doctor Hartman outlined current methods of administration, described the reactions, noting that with three quarters of the patients there was a response of some kind within a couple of hours, varied in its nature, consequent to which was a slower pulse, freer and easier respiration and a reduced, if not a normal, temperature. Pneumonias which developed and were treated within forty-eight hours, showed clear-cut and striking results. The conclusions include a belief in the beneficial effects of the administration of the plasma, the need and advantages of care in the treatment, the necessity for diagnosing pneumonia at a very early stage and the reduction of the mortality from 25.2 per cent to 6.5 per cent.

In the discussion following Doctor Hartman's paper Doctor Pietrowicz of Chicago spoke with reference to the value of the outdoor treatment of pneumonia and influenza, and expressed the opinion that there is a new era coming in the treatment of respiratory diseases. Dr. A. A. Goldsmith of the same city felt that in the different treatments of disease, for which physicians have varied methods there is much the same result. He personally believes in fresh air, quiet and sleep. Some cases are doomed from the start, and no treatment, save possibly serum, can be of any value.

Dr. H. N. Bundesen of Chicago expressed the opinion that the serum treatment of pneumonia and influenza is of great value, just as similar procedures have been of value in scarlet fever and diphtheria. He spoke briefly on the technique, and advocated large doses, 200 cc., of convalescent serum given slowly during half to three quarters of an hour. If there was not a quick drop in the temperature, another 200 cc. could be injected.

Dr. B. S. Maloy of Chicago reported that he had treated 225 cases of pneumonia in the recent epidemic and had lost no case. His assumption was in general that there would be pneumonia complications and he did not wait for the development of the symptoms before acting. On the first visit he gave tincture of aconite and tincture of veratrum viride together. This should be continued in half-teaspoonful doses every half-hour until six to ten doses have been administered. At the same time give the patient 2 or 2½ grains of calomel in one-fourth grain doses, crushing the tablets and mixing with water, and, six or eight hours after the last tablet has been given, administer one or two heaping tablespoonfuls of epsom salts. His experience suggested that this treatment had aborted pneumonia in many instances. Other details of treatment followed. Dr. John Dill Robertson of Chicago endorsed such treatment. He characterized it as of the older fashion, which is employed by many physicians in the present epidemic.

Doctor Maloy's technique was further endorsed by Dr. James S. Boyers of Decatur, Ind., who called attention to the desirability of making the stomach alkaline. Lieut. L. R. Melnikoff of the Great Lakes Station questioned some of the remarkable results achieved outside Army and Navy camps and believed that they were really not complicated with pneumonia or were straight colds. He found that the pneumonia cases fared better in hospital units than in tents. Of 3,000 cases at the base hospital, 20 to 30 per cent developed pneumonia and of these about 20 per cent resulted fatally.

In conclusion, Dr. A. C. Tonney of Chicago reported on a modification of the vaccine treatment as a preventive measure which had been checked by laboratory tests. The method pursued was to furnish an excess of nucleinic acid in the region where the vaccine was introduced. The tissues must be thoroughly massaged after hypodermics are given.

* Maguire and Redden, Jour. A. M. A., Oct. 19, 1918. A. J. P. H., Oct. 1918, p. 741.

THURSDAY MORNING SPECIAL INFLUENZA CONFERENCE.

At the Influenza conference of Thursday morning, December 12, Dr. H. W. Hill, of St. Paul, Minn., was chairman, and Dr. William A. Evans, of Chicago, stated that the committees which had been appointed would present reports and have them freely and informally discussed.

Dr. William C. Woodward of Boston presented the report of the Committee on Administration for Relief during the Influenza Epidemic, stating at the outset that the committee was charged with the formulation of certain principles for the guidance of health and administrative officers. Some of these, he said, would be applicable to relief measures with any other epidemic. Doctor Woodward then read the report of the committee which, with reports of other committees, has already been presented in the January issue of the JOURNAL.

Mr. Frederick L. Hoffman of Newark, N. J., presented the report of his committee on History and Statistics of the Epidemic.

Dr. J. W. Inches of Detroit discussed the wearing of masks by the laity on the streets, and closing. Detroit was closed for sixteen days and then opened again. He compared Detroit with Buffalo, both lake cities, with much the same conditions. His experience after closing seemed to be that when everything was wide open the number of cases was less.

Dr. W. L. Holt of Beloit, Wis., protested against the wholesale condemnation of the gauze mask. He considered that if used in the proper way, it would be a protection, especially in families. The mask should be made of six or eight layers of gauze and would prevent droplet infection; scientific experiments had shown that the pneumococcus does not go through six or eight layers of gauze.

Dr. James A. Hayne, Columbia, S. C., believed that the closing of theaters, shows, schools and churches lessened the death-rate. If people assembled in large crowds, there would certainly be a greater conveyance of droplet infection than if they did not. He showed the need of local option in this particular, and said it was no easy proposition to formulate rules and regulations for the different rural communities. He expressed himself as approving of closing in times of epidemic.

Dr. Roy K. Flanagan of Richmond, Va., noted that in Richmond the schools were closed. Richmond compared favorably with other cities in regard to death-rate. In fact, it was lower than in most cities on the Atlantic seaboard.

Dr. E. B. Oliver of Fort William, Ont., stated that he had favored the keeping open of public places, but the authorities thought otherwise and kept them closed. Then the public crowded into the five-and-ten-cent and other stores, which resulted in a large increase in number of cases. Such problems must be settled by each community for itself.

Dr. Charles V. Craster of Newark, N. J., spoke in favor of the mask because its value had been shown in many instances. It was advisable to stop persons from crowding together. Droplet infection would be minimized by keeping people apart as far as possible. He advocated rational closing measures.

Dr. J. O. Cobb of the U. S. Public Health Service, Chicago, supported the position of Doctor Hayne with reference to sparsely settled communities, but cities like New York, Chicago, Detroit and St. Louis must have other methods of dealing with the public. The problem must be looked at purely from what one can do and not what might be ideal. He believed that the spread of influenza can be controlled by a properly made mask, properly worn. He believed the schools should be kept open in all large municipalities, and business go on as usual.

Doctor Thomas E. Maloney of Fall River, Mass., gave a humorous turn to the meeting and suggested for a solution of the whole problem a diver's suit and a pair of handcuffs.

Dr. Elias Pratt of Torrington, Conn., questioned whether the disease was transmitted by crowding. "Does crowding help to transmit the disease?" he queried. "On the decision of this point must rest the action that health officers should properly take." He spoke in favor of vaccines, through his experience in local factories.

Dr. W. E. Moore of Sioux Falls, S. D., stated that his town had a population of 30,000. When the epidemic started they closed up everything for seven weeks. Then they opened up wide and had an explosion. He advised the use of masks for nurses and others brought into immediate contact with those suffering from influenza.

Dr. E. H. Willard of St. Joseph, Mo., noted that they had been closing picture shows and other places with a view to preventing spread of the disease and yet the disease kept on spreading. He hoped the Association would adopt a definite program for limiting the spread of the disease and for treating it.

Doctor Stokes of Baltimore spoke in favor of the mask, which he said should be made of three or four layers of butter-cloth.

Doctor William H. Park of New York City presented the report of the Committee on the Use of Biological Products.

Dr. J. L. Folkston of South Dakota spoke of his experiences in a town of 7,000 inhabitants, where he used the Rosenow vaccine from the Mayo Foundation, and had lost only one patient.

Dr. William W. McDonald of Jacksonville, Fla., said that at first the cases were mild. He figured out that about one third of the population of Jack-

sonville were susceptible to influenza. He had definite record of 17,000 cases but considered this only one half of the true number. In October they lost 450 from the complication of influenza. Everything was closed at the end of the first week and kept closed until the epidemic was over. The population of Jacksonville is approximately 120,000.

Dr. H. Delamater of St. Joseph, Mo., noted that the appearance of influenza in his city was on September 15. He assumed that it was caused by contact, from his experiences with the previous outbreak, and he isolated cases from the start. With reference to the mask, he said one could not expect the members of a family to wear one for six weeks without washing.

Maj. H. C. Clark of Rock Island Arsenal said that it was not definitely known whether the disease is air-borne or not. Its course in the Army camps was a rapid increase the first week, a boom during the second week, and it declined so rapidly then that it was practically over. He believed the evidence to show that it is a contact disease. He doubts the efficacy of closing the schools. At Rock Island they advised the people to go to bed and the people who did so at once had very light attacks. He believed in avoiding crowds, but not in "wild-fire" closing down.

Colonel Cumming of Newport News spoke in favor of the mask and said that it acted as a barrier between the hand and mouth, rather than between the mouth and outside air. He differentiated between crowds and said that crowds for the purpose of commercial exchange or theater parties did not show a marked incidence, but when people gathered together in large crowds for the purpose of eating there was an explosive outbreak.

Dr. Frederick Montizambert of Montreal, Can., upheld the mask for nurses and others who come in direct contact with the sick. The dry mask will stop droplet infection, but when moist from the mouth, the droplets will dry and be sucked into the mouth so that protection is not afforded. Masks should be frequently changed. He spoke especially of the possibility of infection through the conjunctiva, and said that it might be important to protect them.

Dr. A. W. Carnes of Dallas, Tex., expressed himself as opposed to the closing of public schools, churches, and so on. He stated that child life is not the age most susceptible to influenza, but the age of those working in department stores, and office buildings. He argued that if the schools and churches were closed, then all five-and-ten-cent stores and all business activities should be closed. Restaurants were a cause of contagion, and on the principle of closing these should be closed also.

Dr. Milbank Johnson, Los Angeles, Cal., spoke of handshaking and suggested that Americans could profit by the custom of the Chinese, who shake their own hands as a greeting and not those of others.

OTHER INFLUENZA PAPERS.

A number of papers were presented at different times before different sections which had reference to the influenza, and abstracts of some of these are here placed in order that this material may be brought together.

Types of Organisms Found in the Influenza Epidemic in Baltimore.

Mary Shedwick Bailey, M. D.
Health Department, Baltimore.

In the study of 47 cases of influenza by Doctors Simon, Maldeis and myself, the following organisms were cultivated from the sputum: A non-hemolytic streptococcus was found in 11 cases, a hemolytic streptococcus in 6 cases, the *Staphylococcus aureus* in 9 cases, the pneumococcus type IV in 6 cases, the pneumococcus type II in 9 cases, the penumococcus subtype II in 2 cases, the pneumococcus type not determined in 10 cases and influenza-like bacilli in 6 cases. These influenza-like bacilli were not carried any further than the pure colonies on blood agar plates but resembled the influenza bacillus morphologically when colonies were picked from such plates. At times two or more different types of organisms were found in the same sputum.

The smears of the 28 cases which I examined gave the following results:

Streptococci were found in 24 sputums, staphylococci in 1, pneumococci in 15, and 8 showed the presence of fine, Gram-negative, influenza-like bacilli. Streptococci were observed alone in 6 and pneumococci alone in 4 cases. Streptococci mixed with pneumococci and Gram-negative bacilli were found in 6, mixed with pneumococci in 9, with staphylococci in 1, and with Gram-negative bacilli in 2 cases.

Agency of Hotels in the Spread of Influenza.

Effie L. Lobdell, M.D.
Chicago.

In listening to the papers and discussions relative to the survey and means of control of influenza in a community, I am impressed by the persistent absence of any mention of hotels as important. Churches, theaters and schools, and the occasional gathering places of people are mentioned and measures of control adopted. Hospitals which, because of their normal condition of sanitation and training of their personnel are the least liable to spread contagion, are still further so affected by the extreme rules of quarantine that the work of the surgeon and physician is seriously interfered with.

Yet, what I believe is a most potent factor in the distribution of infection in this present epidemic is hotels. I live in one, and I personally know that on each floor for the past few weeks several rooms have one or more guests ill with influenza, and no special precautions have been taken by the management to protect other guests or the employees.

One or two a day have been removed to hospitals during a late stage of the disease and some days one or two a day have died. One day last week by 8 p. m. all rooms were taken and waiting transients were checking their baggage awaiting their turn for a room. The first room to be had was made vacant by the removal of a patient.

The maids have been ill of influenza in groups of three or four, lessening the required number for normal times.

The rooms are dry-cleaned by sweeping, dusting, etc., carrying the dust rags from one room to another, except once or twice a week, when floors, baseboards, etc., are washed and pneumatic cleaners used.

The traveling public is careless in habits and untidy. A disease carrier, often ill, is changed from one hotel to another or from one room to another without restraint. Frequently, on account of expense, a physician is not called or one from outside is sent for, who will not inform the management or be interested in anything in the house.

Let me suggest that a definite plan be evolved to cover conditions of hotels, rooming houses, boarding houses and other places where residents are transient, and that this plan should compel reporting and registration of casual illness occurring in its premises:

1st. To the main office of the institution or hotel and by it to the Health Department.

2d. That suitable sign be placed on the door of room or apartment occupied to indicate illness.

3d. That a physician representing the management ascertain the nature of illness, and such other facts as will protect residents and employees and render proper care to the patient.

4th. That instructions be formulated, printed and posted in rooms, compelling necessary cleanliness in habits of guests and occupants of rooms.

5th. That employees who work in these hotels or institutions be reasonably instructed and protected by the management and be examined by a physician when ill, and not allowed to resume work until again examined.

6th. That disinfection be compulsory as a precaution when a contagious or infectious case has been known to exist in a room or apartment of a resident or guest before another occupant is permitted to register.

7th. That this matter be taken up with the Hotel Association at an early date and coöperation requested.

RESOLUTIONS ON THE STATISTICAL STUDY OF THE INFLUENZA EPIDEMIC OF 1918.*

Introductory Remarks.

We have just passed the first phase of an epidemic of influenza-like disease. This epidemic calls for the application of the most effective methods of research in medicine, and especially in preventive medicine. The special committee on the statistical study of this epidemic, appointed November 20, 1918, to prepare a preliminary report to this Section, wishes to present a résumé of its examination of the prevailing statistical situation as follows:

There are two methods of research inquiry available to the American public health movement in the study of this epidemic: (a) the *intensive* method of observation of single cases of the disease and the collection of fact and opinion arising out of such observations; (b) the *extensive* method of inquiry, or the statistical method, based upon the observation of large numbers of cases and upon the application of the criteria and modes of study peculiar to the statistical method. The laboratory and public health administration sections of this Association may be expected to provide opinions on the best modes of research through intensive inquiry, in association with members of of the medical profession engaged in the practical case management of the disease. The application of statistics and its methods to the study of the epidemic is, however, almost entirely within the province of the Vital Statistics Section. This Sec-

* Being Resolutions and Discussion before the Section on Vital Statistics, December 11, 1918, at Chicago, Ill., together with Notes of Subsequent Committee Work.

tion could contribute to the study of the epidemic through the extensive or statistical method perhaps by following out the program suggested below:

Carefully consider the possible sources of data and draw up a schedule of *registration and tabular requirements*. This would involve consultation with practical registrars in the several states and cities and in the Federal government, assigning work of various kinds to each of these groups in order to avoid duplication. It would also involve coöperation with the Army, Navy, Public Health Service and laboratory groups in order to consider what vital data there are available other than mortality statistics, which, reduced to uniform tabular form, could be used in determining the broader aspects of the epidemic in the United States.

Pathometric study of the epidemic in order to determine its law in the several states and cities,—especially the law which would best describe its course through these populations with respect to the first, second, and third phases; the higher analytic study of the characteristics of these curves in order to determine the true "excess mortality," etc. By means of such higher analytic study, numerous contributions to medical knowledge with respect to this epidemic may be developed. It should be possible to relate study of the epidemic to other contributions in epidemiology by students who have made use of mathematical methods in the study of the disease.

This, briefly, is a statement of the important work which lies before us with respect to the broader facts of this epidemic. The epidemic has given us an opportunity to show what statistics, especially vital statistics, and its methods can do for preventive medicine. The example we shall set in the study of the data of the influenza epidemic will no doubt be a point of departure for studies of other data in the medical sciences.

It will not be possible for any single member of our Section to say just how this desirable end shall be achieved. I would suggest, therefore, that this Section appoint a committee and, by continuing the special emergency committee, to consider ways and means of presenting the extensive facts of the epidemic and embodying in the work of the committee the following principles:

That the Committee shall be composed of representatives of the United States Bureau of the Census, of the United States Army and Navy, of the United States Public Health Service, of representatives of the state and municipal health boards, laboratory and clinical societies and of the various statistical, sociological, actuarial and economic associations. The advisory work of the Committee shall be to outline first, the various sources of data, the minimum standards of tabular and registration practice to be observed by the several organizations providing data, with a view to preventing any overlapping, and second, to bring in recommendations for the pathometric study of the data and publication of these results. The preliminary report of the special committee, emergently appointed to bring this subject to your attention, should be considered in furthering the above ends, and the Committee continued so far as possible in accordance with the suggestions as to representation advanced in this report.

Respectfully submitted,

EDWIN W. KOPF,

Chairman of the Special Emergency Committee on Statistical Study of the Influenza Epidemic, meeting at the University of Pennsylvania, Philadelphia, Pa., November 29–30, 1918.

Resolutions

Adopted by the Section on Vital Statistics, December 11, 1918.

Your special committee on the statistical study of the epidemic begs leave to offer the following resolutions:

Whereas: The conclusions of preventive medicine are based both upon the intensive study of cases of health and disease, *and* upon the extensive survey of health and disease in masses of the population, and

Whereas: The function of vital statistics is to provide this latter extensive survey of the recent epidemic of "Influenza" among the masses of the American population, especially with a view to the discovery of truths in preventive medicine, not now known, but applicable to the development of positive knowledge of this disease in its broadest aspects, therefore be it

Resolved: That the Section on Vital Statistics continue the special committee on statistical study of the epidemic and to give it the power to appoint to membership of this committee proper representation of the following groups interested in the discovery of the essential epidemiological truths of the disease:

Representatives of the Public Health Service of the United States.

Representatives of the Medical Department of the United States Army and Navy.

Representatives of the United States Bureau of the Census, especially the divisions of Vital Statistics, Population and Geography.

Representatives of the State and Municipal Commissions and Boards of Health now studying the epidemic.

Representatives of actuarial, statistical, economic and sociologic societies.

Representatives of infant mortality, obstetrical and other special societies in medicine.

Abstract of the Discussions of the Sub-Committees, Vital Statistics Section.

In accordance with the foregoing authorization by the Section on Vital Statistics, and with a view to coöperation with the Sub-committee on "History and Statistics of the Epidemic," of the Association's general reference committee on the 1918 epidemic of influenza* the special committee on statistical study of the influenza epidemic was reorganized as follows:

Sub-committee A: Registration and Tabulation Practice of the Federal Departments. Wm. H. Davis, M. D., Chief Statistician, Division of Vital Statistics, Bureau of the Census, Chairman; Richard C. Lappin, Recorder.

Sub-committee B: Registration and Tabulation Practice of the State Departments and Commissions. Otto R. Eichel, M. D., Director, Division of Vital Statistics, New York State Department of Health, Albany, Chairman; Edwin W. Kopf, Recorder.

Sub-committee C: Registration and Tabulation Practice of Municipal Boards of Health and of Private Public Health Agencies, Charles V. Chapin, M. D., Superintendent of Health, Providence, R. I., Chairman.

Sub-committee D: Pathometry (mathematical analysis and interpretation) of the Epidemic. Charles C. Grove, Ph. D., Columbia University, Chairman; Arne Fisher, F. S. S., Recorder.

Sub-committee A met in Washington, D. C., on December 23, 1918, and adopted the following resolutions relative to its functions:

Functions of the Committee.

1. *Resolved*, that the function of the Special Committee, of the Section on Vital Statistics of the American Public Health Association, on the Statistical Study of the Influenza Epidemic is purely an advisory one and that any definite program of study of mortality statistics, morbidity statistics, Army and Navy statistics, and the statistics of hospitals and private organizations shall be issued by the official bodies representing these subjects.

Statistics of Population.

2. *Resolved*, that the Committee shall use only estimates of population officially issued by the Bureau of the Census in studying mortality and other statistics of the influenza epidemic.

The Committee made proper provision, for use of estimates.

3. *Resolved*, that the sense of this Conference is that interstate comparisons of data are desirable and they should be presented according to the judg-

*"Influenza Bulletin, A Working Program." A. P. H. A.; Boston, December 13, 1918, p. 15.

ment of the Chief Statistician for Vital Statistics, Bureau of the Census.

4. *Resolved*, that the desirable thing to do, if it can be done, is to get accurate censuses, and if this cannot be done to use random sampling and that in the latter instance Major Davenport be delegated to choose the best method of random sampling, and

5. *Resolved*, further, that the Census Bureau be requested to endeavor to secure from the data in the office in the Adjutant-General of the Army and in the Bureau of Navigation of the Navy, the distribution of the ages in the Army and Navy, by months, for the period from July 1, 1917, to December 31, 1918, but in the event that such data cannot be obtained the method of random sampling be adopted.

6. *Resolved*, that wherever causes of death are shown of registrations of influenza (International Title 10) and pneumonia, all forms (International Titles 91 and 92) as primary causes, the Manual of International List of Causes of Death and the Index of Joint Causes of Death shall be employed in making such classifications.

Infant Mortality.

In the discussions of the effects of the epidemic on infant mortality, the following resolution was introduced and adopted:

7. *Resolved*, that the Committee realizes the urgency of studying infant mortality during the epidemic period, in order to ascertain what part of this mortality was probably due to (a) neglect contingent upon the morbific influences arising out of the epidemic and (b) influenzal illness of the mother.

8. *Resolved*, that inquiry be made by lying-in hospitals, visiting nurse associations and maternity centers to determine the morbidity and mortality among pregnant women, and products of pregnancy during the period September to December, 1918.

Norms of Mortality.

9. *Resolved*, that for states and cities where data are available a norm of (a) infant, and (b) adult mortality by age groups for influenza and pneumonia combined, and for all causes of death combined, be constructed for the months of the epidemic (September, October, and November, 1918), and at least that these norms be based, if possible, upon the experience of the five preceding years.

At the afternoon session the discussions were again taken up, and the following resolutions adopted:

10. *Resolved*, that, in view of the known lack of uniformity, official morbidity reports do not offer a reliable basis for comparisons of case-incidence in different areas, but no doubt they furnish an index (a) of relative chronology and in some instances of sex and age distribution, and (b) of morbidity for military and naval populations which are more directly under control.

11. *Resolved*, that unless there is satisfactory evidence that all laboratory conditions have been properly controlled, it is unwise to draw any conclusions from apparent variations in bacterial flora at various stages in the epidemic or in different localities.

12. *Resolved*, that it is desirable, for a number of representative cantonments or other military establishments to supply information as to sickness, by five-year age periods, by date of onset, by duration of illness in days, by principal complications, including such sequelæ as tuberculosis, and fatality or lethal rates per 100 completed cases.

13. *Resolved*, that it is desirable to secure information from the several states and cities on specific measures employed to control the epidemic, and the dates such measures were instituted and terminated.

The Committee came to the conclusion that it was too early to consider mathematical analysis.

14. *Resolved*, that the Committee wishes to direct attention to the possibility of studying army data relative to influenza according to types of housing.

15. *Resolved*, that it is desirable that the Federal Government bureaus (Army, Navy, United States Public Health Service, and the Bureau of the Census) undertaking investigations in connection with the influenza epidemic, prepare a general statement of their program.

Sub-committee B met on January 8, 1919, in New York City, and adopted resolutions regarding the special economic, sociological, and other strictly local aspects of the epidemic statistics.

The Committee endorsed Resolution No. 2 of Sub-committee A and favored the isolation of statistics of mortality among men in military establishments from the civilian population in State reports, and the classification of the statistics of death to be in harmony with Resolution No. 6 of Sub-committee A. The Committee further approved of the preparation in certain states and cities of statistical cards according to authorized standards for the determination of norms of infant and adult mortality, according to causes of death by weeks during the autumn and winter. Further, it suggested the differentiation in tables of the two types of influenza.

Coördination of the work of the several Sub-committees will be carried on through the General Chairman of the Committee on Statistical Study of the Epidemic, Mr. Edwin W. Kopf, 1 Madison Avenue, New York City.

ASSOCIATION NEWS

HELP WANTED.

In order to relieve the shortage of sanitarians, help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Physician for health department of southern city to have charge of department. Salary, $2,500 to $3,000 per annum. Address W. D. H., No. 188, care of this JOURNAL.

Bacteriologist in a Massachusetts municipal health department laboratory, with at least one year's experience in public health laboratory work. Male physician preferred. Salary, $1,500. Address D. H. B., No. 190, care of this JOURNAL.

Man or woman, preferred ages 21 to 35, for physiological chemist in New York State Department of Health. Requirements: knowledge of organic and physiological chemistry, with three years' experience. Salary, $2,600 to $3,000. Apply for form before February 17 to Civil Service Commission, Albany, N. Y.

Laboratory assistant and bacteriologist, New York State Department of Health, man or woman. Collegiate education required to include courses in bacteriology. Salary, $720. Written examinations in technical procedures and standard methods, with consideration given for education and experience. Apply for form before February 17 to Civil Service Commission, Albany, N. Y.

Clerk, stenographer or secretary, Division of Laboratory Research, New York State Department of Health. Requirements: collegiate education, knowledge of bacteriological terminology, elementary bookkeeping, accounting, filing, stenography, and typewriting with reading knowledge of French and German. Salary, $901 to $1,500. Written examination. Apply for form before February 17 to Civil Service Commission, Albany, N. Y.

Pathologist and teacher of bacteriology in North Dakota University. Salary $2,500. Address F. E. H., No. 183, care of this JOURNAL.

NEW MEMBERS.

The following great showing of New Members is one of the results of the Chicago Meeting:

Elected to Membership in the American Public Health Association during December and January:

Wilfred H, Kellogg, M.D., Cal. State Health Bd., Sacramento, Cal.
Roxana H. Vivian, Ph.D., Wellesley College, Wellesley, Mass.
William B. Dougherty, Chicago, Ill.
Joseph S Cohn, M.D., Chicago, Ill.
William C. Crapple, M.D., Chicago, Ill.
Harry G. Bryer, M.D., Chicago, Ill.
Byron B. Black, Sc.B., M.D., Chicago, Ill.
V. A. Bergeron, M.D., Chicago, Ill.
Julius Berinstein, M.D., Chicago, Ill.
J. Frank Armstrong, B.S., M.D., Chicago, Ill.
Paul H. Wezeman, M.D., Chicago, Ill.
David Nicholas Schaffer, M.D., Chicago, Ill.
Samuel Ochs, M.D., Chicago, Ill.
(Miss) Cornelia Allen, R.N., Chicago, Ill.
Helen B. Flynn, M.D., Chicago, Ill.
Stephen A. Cambowen, M.D., Chicago, Ill.
Eugenia E. Speevak, M.D., Chicago, Ill.
Bella Fox, M.D., Chicago, Ill.
M. M. Smith, M.D., Dallas, Texas.
Eric J. Dauek, M.D., Chicago, Ill.
Frederick M. Doyle, M.D., Chicago, Ill.
Alfred L. Fein, M.D., Chicago, Ill.
Robert Ludwick Furby, M.D., Chicago, Ill.
Harry H. Freilich, M.D., Chicago, Ill.
George William Gindele, M.D., Chicago, Ill.
Philip M. Gray, M.D., Chicago, Ill.
Samuel Harris Ganser, M.D., Chicago, Ill.
Benjamin Goldberg, M.D., Chicago, Ill.
Allan Joseph Heuby, M.D., Chicago, Ill.
Isabel M. Davenport, M.D., Chicago, Ill.
Charles J. Happel, Chicago, Ill.
F. B. Harmison, M.D., Chicago, Ill.
Alexander S. Hershfield, M.D., Chicago, Ill.
Arthur Hurwich, M.D., Chicago, Ill.
C. F. Isaacs, M.D., Chicago, Ill.
Virginia M. Johnson, M.D., Chicago, Ill.
L. A. Juhnke, M.D., Chicago, Ill.
Henry Klein, M.D., Chicago, Ill.
Estell D. Leonard, Chicago, Ill.
Almena P. McDonald, Chicago, Ill.
Israel Litten Sherry, S.B., M.D., Chicago, Ill.
Leon Sochat, M.D., Chicago, Ill.
Grace S. Wightman, M.D., Chicago, Ill.
Charles Carroll Thomas, M.D., Chicago, Ill.
Anton Philip Freund, Ph.G., M.D., C.M., Chicago, Ill.

E. E. Simpson, M.D., Englewood Hospital, Chicago, Ill.
E. W. Stenn, M.D., Chicago, Ill.
Felix H. Renberg, M.D., Chicago, Ill.
Gidore S. Polishuck, M.D., Chicago, Ill.
Stanley, Reuben Perkins, M.D., Chicago, Ill.
Abraham M. Oberman, M.D., Chicago, Ill.
Lillian Estelle Nicholas, Base Hospital, Camp Sheridan, Montgomery, Ala.
Fred Rudwick, Ph.G., M.D., Chicago, Ill.
Amzi Bedell Shoemaker, M.D., North Attleboro, Mass.
Anna Sokoloff, M.D., Chicago, Ill.
Estus H. Magoon, B.S., Muscle Shoals, Alabama.
William H. Daley, M.D., Chicago, Ill.
Noreen M. Sullivan, M.D., Chicago, Ill.
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William H. Meyer, M.D., Chicago, Ill.
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Mary Magdaline Gertig, M.D., Chicago, Ill.
William H. Finn, M.D., Chicago, Ill.
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Carl A. Grate, Huntsville, Ala., Health Officer.
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W. I. Fugate, M.D., New Castle, Ind., Sec. City Bd. of Health.
Charles Wesley Turner, LL.D., Harrisburg, Ill.
Roy K. Flannagan, Richmond, Va., Chief Health Officer.
Melville Day Dickinson, M.D., Troy, N. Y., Health Officer.
Robert D. Defries, M.D., D.Ph., Toronto, Ont., Dept. of Hygiene.
R. M. Campbell, M.D., LaFayette, Ind.
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H. B. Noble, M.D., Howard, S. D.
C. F. Severs, M.D., Canterville, Iowa.
J. G. South, M.D., Frankfort, Ky.
James E. Mead, M.D., Detroit, Mich.
Orville Henry Brown, Phoenix, Ariz. A.B., M.D.
J. S. Ward, D.D.S., M.D., Nashville, Tenn.
W. S. Foster, Roanoke, Va.
R. S. Wiet, M.D., Beaumont, Texas.
A. C. McPhaden, M.D., Rochester, Minn.
Edward C. Rosenow, Bact., Rochester, Minn.
Louis Edward Broughton, M.D., Andalusia, Ala.
Eugene Hastings Bullock, M.D., Kansas City, Mo.
J. B. Freund, M.D., Butte, Montana.
Miss Sally L. Jean, N. Y. C.
Miss Tracy Copp, A.M., M.D., Milwaukee, Wis.
Royal S. Copeland, A.M., M.D., New York City.
Thomas D. Lee, M.D., Camden, N. J.
A. M. Call, M.D., Ruby, N. D.
Herbert L. Davis, M.D., Cleveland, Ohio.
Finis W. Ewing, M.D., Muskegee, Okla.
Eudore Dunbena, D.D.S., Montreal, Can.
James A. Robertson, M.D., Stratford, Ont.
Frank T. Launder, M.D., Carwin, Iowa.
Emerson O. Bradshaw, Chicago, Ill.

Mrs. Carolyn S. Davison, Chicago, Ill.
Bathena Coone, M.D., Hanna City, Ill.
Charles R. Cooper, M.D., Chicago, Ill.
Harry H. Griggs, Mgr. Industrial Relations Dept., Chicago, Ill.
Leo Gradman, Chicago Lab. Chicago, Ill.
Chester W. Clark, Maj. M.C., Rock Island Arsenal, Rock Island, Ill.
Oscar W. Ferguson, M.D., Mattoon, Ill.
Ella Camp, Brookfield, Ill.
J. C. Corbus, Mendota, Ill.
Chicago, Laboratory, Chicago, Ill.
Edmund W. Weis, M.D., Health Commissioner, Lasalle, Ill.
A. Wilberforse Williams, M.D., Chicago, Ill.
Max Thorex, M.D., Chicago, Ill.
Charles E. Stanbury, Chicago, Ill.
J. M. O'Malley, Ohio, Ill.
Henry G. Ohle, Ph.D., M.D., Chicago, Ill.
Edward E. Moon, M.D., Wilmette, Ill.
Joseph Henry Radford, M.D., M.O.B., Calb, Ont.
Maximilian Kern, M.D., Chicago, Ill.
City of Blue Island, Blue Island, Ill.
Edward T. Jachoff, M.D., Chicago, Ill.
H. B. Fitz Jerrell, M.D., Geneseo, Ill.
Charles E. Harrison, M.D., Fulton, Ill.
Cicero D. Hill, Chicago, Ill.
George J. Kuebler, LL.B., Lawyer, Chicago, Ill.
Volney S. Cheney, M.D., Chicago, Ill.
Sheldon L. Howard, Ill. State Reg. of V. S., Springfield, Ill.
John A. Kappelman, Capt. M.C., M.D., Chicago, Ill.
Joseph Mark Kearney, B.L., M.D., Chicago, Ill.
A. W. Werelius, M.D., Chicago, Ill.
Hubert P. Matte, Chief Sanitary Eng., Springfield, Ill.
Clara Stone, M.D., Evanston, Ill.
M. A. Wood, Chicago, Ill.
George Gwin Taylor, Springfield, Ill.
William A. Pike, Ottawa, Ill.
Clarence Wilson East, M.D., Springfield, Ill.
A. A. Freedman, M.D., Chicago, Ill.
Janet Marie Colster, R.N., Chicago, Ill.
Miss Leslie L. Bliss, B.A., Welfare, Chicago, Ill.
Olive Z. DeLang, R.N., Montreal, P. Q.
Benjamin F. Simon, M.D., Bureau of Health, St. Paul, Minn.
William Alfred James, M.D., Chicago, Ill.
J. D. McGowan, Chicago, Ill.
DeVilbliss Mfg. Co., Toledo, Ohio.
Adam H. Wright, M.D., Toronto, Can.
Miss Ruth O. Pierson, Chillicothe, Ohio.
R. L. Wilson, M.D., Health Officer, Racine, Wis.
D. P. MacMillan, Ph.D., M.D., Chicago, Ill.
Lester S. Brown, A.B., M.D., Chicago, Ill.
Rudolph C. Engel, M.D., Medical Dir., Cleveland, Ohio.
Robert C. Sweetser, Prof. of Chemistry, Worcester, Mass.
George W. Funch, Chicago, Ill.
Warner E. Farlander, Chicago, Ill.
Sampson James Morris, Ph.G., M.D., Chicago, Ill.
J. M. Green, M.D., Ph.G., Charleston, S.C.
John W. Shirley, M.D., Miami, Fla.
Julia C. Strawn, M.D., Chicago, Ill.
Arthur F. Holden, A.B., Minneapolis, Minn.
William Henry Wolfram, M.D., Perth Amboy, N. J.
J. LeClero Shodaker, Burlington, N. J.
Clinton L. Ewing, M.D., Baltimore, Md.
Ara Nathaniel Sargent, A.B., M.D., Salem, Mass.
John Frost Winchester, D.Sc., D.V.S., Lawrence, Mass.
Thomas Bruce Kirkpatrick, New York City.
Mosart Monse-Lesser, M.D., New York City.
Ben. F. Con, M.D., Clymer, Pa.
Visiting Nurse Assn., New Haven, Conn.
Herman Old, Manhattan, Kan.
Ray Eckerson, Ph.D., Jameston, Iowa.
Jene Van De Vrode, R.N., Atlanta, Ga.
R. Kunze, W. New York, N. J.
Wilson & Co., Chicago, Ill.
George W. Roddy, S. E., Philadelphia, Pa.
Ross George Martin, Wilmington, N. C.
Charles Sproc, Chicago, Ill.
Charles William Hepperlen, Jacksonville, Fla.
Essex County Mosquito Extermination Commission, Newark, N. J.
Clarence Dunbar Hart, Somerville, Mass.
Ernest C. Riebel, M.D., Chicago, Ill.
Max I. Leviton, M.D., Chicago, Ill.

*

Members of the A. P. H. A. elected to the various sections:

PUBLIC HEALTH ADMINISTRATION SECTION.

Walter Waldo Armstrong, M.D. Supervising Field Health Officer, Chicago, Ill., Health Dept., 1067 Argyle Street, Chicago, Ill.
Pansy V. Besom, Chief Child Welfare Supervisors, Dept. of Health, 16 Moore St., Winthrop Beach, Mass.
J. T. Biggerstaff, M.D., Wabash, Indiana.
Wm. H. Bixby, Brig.-Gen., U. S. Army Retired, 508 Federal Building, Chicago, Ill.
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J. Treichler Butz, Health Officer, Allentown, Pa., County Medical for Lehigh for Department of Health, Harrisburg, Pa., 304 N. 9th St., Allentown Pa.
R. H. Coats, Dominion Statistician, Ottawa, Ontario.

G. G. Craig, Rock Island, Ill.
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John A. Hunter, Sanitary Engineer, American Sheet & Tin Plate Co., Pittsburgh, Pa.
John M. Kennedy, Jr. Exec. Secy. Colorado Public Health Assoc., 520 Chamber of Commerce Bldg., Denver, Colorado.
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John P. Koehler, Deputy Health Commissioner, Milwaukee, Wis.
C. J. Longstreet, M.D., Health Officer, Binghamton, N. Y.
C. K. Maxwell, Kellyton, Alabama.
Annetta J. Nicoll, Chief Food Inspector, City Hall, Topeka, Kansas.
T. Eben Reeks, M.D., Director, Bureau Prev. Diseases, Conn. State Dept. of Health, Hartford, Conn.
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BOOKS AND REPORTS REVIEWED

Dispensaries, Their Management and Development. *Michael M. Davis, Jr., Director of the Boston Dispensary and Andrew R. Warner, M. D., Superintendent of the Lakeside Hospital, Cleveland, Ohio. New York: The Macmillan Company. Pp. 438. Price, $2.25.*

Mr. Davis and Dr. Warner have produced a pioneer work in a field of increasing importance. The book is written to serve three purposes,—first, to furnish a brief account of the development and extent of dispensaries in the United States; second, to give the details of efficient management of dispensaries for the benefit of those who work in such institutions; and third, to present dispensary organization as the best working basis for efficient medical service in relation to patient, physician and the general public. Their definition of a dispensary as "an institution which organizes the professional equipment and special skill of physicians for diagnosis, treatment and prevention of disease among ambulatory patients," determines the authors' treatment of the subject in all its phases. They are not discussing the dispensary as a poor place for the giving of poor medical treatment to poor people, which it too often is, but as an efficient organization of medical facilities, adaptable to the treatment of all classes of ambulatory patients.

The book has a great value as a guide to dispensary managers and other workers in dispensaries, in matters of organization, equipment, social service, buildings, clinics, admission systems, records, follow-up, efficiency tests, finance and other operating essentials. In this connection it will do much to help establish standards of dispensary organization and service. Its greatest contribution, however, lies in its intelligent and indisputable presentation of the need for organization of a community's medical facilities for conservation of life and health. It recognizes a serious present problem in the inadequacy of the individualistic practice of medicine and is prophetic of the coming organization of medical practice to meet the health problems of all the people.

John E. Ransom.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horowitz and Mayo Tolman.

Escaping Quarantine.—A group of "prominent citizens" had gathered for a social occasion. Men and women of intelligence were there, and honorable people, all of them, or thought they were. During the evening the subject of quarantine was discussed —and how annoying it is to be quarantined, and all that. Then the little group, or several of the group, began telling how they had avoided quarantine. They related with merriment how each had "fooled the doctors," and escaped from home and gone about their business despite the fact there were contagious diseases in the house, and they seemed to think it a good joke on the health officers that the card on the front door didn't keep them from using the back door. Not one in the group considered that he or she had done a dishonorable or a dangerous thing.

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Sickness Survey in Cotton Mill Villages.—In a comprehensive survey of disabling sickness among the population of seven cotton mill villages of South Carolina in relation to family income some interesting results have been obtained. A unique method of comparing family incomes was used, based upon the Atwater scale of food requirements. It was noted that a higher sickness rate (involving inability to work) and a greater amount of working time lost on account of such sickness were found among members of families whose incomes were low than among members of families with a more favorable economic status. Only when the income approximated $900 a year for a family of "normal" size (in 1916) did the sickness rate appear to be as low as that suggested by similar studies in a number of localities in the United States as the normal rate. Furthermore, a greater proportion of disabling illness of relatively long duration appeared among persons whose family income was below the average than among persons with a more favorable economic status.—E. Sydenstricker, G. A. Wheeler, and J. Goldberger, *Public Health Reports*, November 22, 1918, 2038. (*D. G.*)

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Weekly Health Index.—The Bureau of the Census, Department of Commerce, is publishing each week the mortality reports from the largest cities in the United States. The reports include the total number of deaths, exclusive of stillbirths, the death-rate, the number of deaths under one year, and the ratio of infant deaths to total deaths. The populations are estimated by the arithmetical method, based on federal and state censuses, and are calculated as for July 1, 1918. Wherever possible averages for the corresponding week during the past five years are given. The reader is cautioned not to make hasty conclusions in interpreting the figures since weekly rates fluctuate widely. In the weekly index of November 12, not only are the above facts recorded for forty cities having 100,000 population or more, but summaries regarding the deaths from influenza and pneumonia are given for nine weeks dating from September 14 to November 9, 1918. This was the period of the influenza epidemic. The report covers the facts obtained from forty-six large cities, located in every part of the country. (*M. P. H.*)

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Federal Health Service Demanding Tuberculosis Hospitals.—Because there will be 13,000 tuberculous soldiers and sailors in 1920, and because there are already 5,000 cases of tuberculosis among the military population, the United States Public Health Service is demanding from Congress an appropriation of $26,000,000 with which to build a chain of tuberculosis hospitals all over the country. The sum of $10,500,000 is requested immediately to take care of the existing cases. Practically all of these represent arrested cases of tuberculosis which have broken down under the strain of military activity. These cases were not detected by the local draft boards when the men were examined. It is planned to erect the hospitals on government property in the following cities: Boston, Mass.; Hill, Mass.; Chicago, Ill.; Cleveland O.; Detroit, Mich.; Evansville, Ind.; Louisville, Ky.; Norfolk, Va.; New Orleans, La.; San Francisco, Cal.; Seattle, Wash.; St. Louis, Mo.; Wilmington, N. C.; Fort Slocum, Mo.; with one in North Carolina.—*Municipal Journal*, November 16, 1918.

(*M. P. H.*)

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Pneumonia—a Problem for the Epidemiologist.—In an article on the prevention of pneumonia, Dr. Rufus Cole points out quite conclusively that despite the tendency in the opposite direction for many years, lobar and bronchopneumonia must be considered independently as they require different preventive measures. Lobar pneumonia is caused by the pneumococcus while the present indications are that bronchopneumonia is due to a hemolytic streptococcus. It is known that the pneumococcus is widely distributed in the mouths of healthy people. It is for this reason that in the past most cases of pneumonia have been attributed to lowered vital resistance which permitted the organisms already present to gain a hold. More recently, however, it

has been demonstrated that there are several types of the pneumococcus and that the types causing more than two-thirds of the cases are not found in the mouths of well people. Where physicians have made careful observations as to the spread through carriers and contacts they have been forced into the conclusion indicated, namely, that lobar pneumonia is a contagious disease and must be treated as such. Lowered resistance is, however, a factor in the prevalence of the disease. Experiments this last winter, while not productive of conclusive results, were sufficiently encouraging to warrant the continued use of vaccination against certain types.

The handling of bronchopneumonia will depend on whether the various strains of hemolytic streptococci isolated prove to be identical. If they are not identical it must be concluded that the epidemics experienced are due to some other factor than the organisms and the study of the spread of the disease will become correspondingly difficult. If, however, they are identical and are shown to be the harmless streptococci found in the throats of healthy people, the problem becomes still more difficult. Present knowledge indicates, however, that hemolytic streptococci are seldom found in normal throats and the conclusion appears justified that this also is a contagious disease and is spread by a more or less direct transfer of the infectious agent from the sick to the well. Here again it is probable as is indicated by the large number attacked after some primary infection, such as measles, that lowered vital resistance is a factor in the spread of the disease. As with lobar pneumonia it is probable that advanced knowledge will offer a preventive inoculation.

REVIEWER'S NOTE: It would appear that both forms of pneumonia offer phases that should hold the attention of health officers if the ever increasingly heavy toll exacted by these diseases is to be curbed.—*Journal A. M. A.*, August 28, 1918. (*M. T.*)

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Privy Danger.—The danger zone of the insanitary privy ranges from two hundred to four hundred yards, the average flight of the fly. In rural districts the zone commonly includes only the home to which the privy belongs and thus only five to seven people are jeopardized. The danger, however, is multiplied many fold in the case of the town privy for here the zone may include not one family but a whole block of eight or ten or more houses. This, however, is not the worst for each of the fifty or more people living in the block are within the danger zone of not the one but several privies. Still another factor in the increased danger of the privy in the city must be considered, namely, the carrier. From one to three per cent of all persons having typhoid continue to harbor and expel the germs of this disease after apparent recovery. According to the laws of probability the chances of a carrier using a privy within the danger zone of a house are eight or ten times greater in the city block with a number of persons using privies than it is in rural districts with a small number of persons using a single privy.—*N. C. Health Bulletin*, October, 1918. (*M. T.*)

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Carbon Tetrachloride as a Delousing Agent.—By pouring 25 cc. of carbon tetrachloride into a large tin can containing the complete clothing outfit of a United States Army private (purposely contaminated with lice), and keeping the can covered for two hours, it was found that the vapors of this chemical destroyed all the lice. It is suggested that this method may be used where the dry and moist heat and hydrocyanic gas are not available.—Foster, M. H., *Public Health Reports*, October 25, 1918. (*D. G.*)

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Sanitation in Emergency Shipyards.—At a meeting of the sanitary section of the Boston Society of Civil Engineers, W. L. Stevenson, sanitary engineer of the Shipping Board, Emergency Fleet Corporation, described the sanitary problems that confronted the Shipping Board, when the United States decided to build a large number of vessels as a necessary aid in winning the war. One of the largest problems was to supply an adequate and safe water supply for the employees. Wherever possible the regular supply of an adjoining city would be utilized. Where this was not possible, new sources of supply were obtained, and in order to insure their safety, liquid chlorine was used to disinfect the water. Another problem was to provide adequate and satisfactory means for the disposal of sewage. Wherever possible privies were abandoned and flush toilets installed. Care was taken to prevent the pollution of a drinking water supply at the sewer outfall. The proper and adequate disposal of garbage and manure was also necessary. In this way, the fly nuisance was greatly diminished and protection of the food in the restaurants effected. It was also found necessary to provide restaurants and houses for the workers. These problems were overcome with amazing rapidity and satisfaction. The restaurants were always on the cafeteria plan, and served meals throughout the day and night. The houses were individual family houses, in some cases, and dormitories in others. In many ship yards it was also necessary to combat the

mosquito nuisance. This was done essentially by cutting ditches and draining the land.

In addition to attending to the problems of sanitation, nurses were employed to render first aid, in case of injuries. A physician was always on hand to give whatever medical advice was necessary. Hospitals were also built to care for the sick and seriously injured. These hospitals were of great benefit during the epidemic of influenza-pneumonia.

C. E. Turner, sanitary engineer of the Shipping Board for the first district, told how covered buckets with a faucet near the bottom were provided in all parts of the yard, and in the hold of the ship itself, together with individual paper cups, as an emergency measure to prevent the spread of influenza among the employees, while the epidemic prevailed. Heretofore, the usual open bucket and common dipper were used to dispense water. (*M. P. H.*)

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Venereal Disease Statistics.—For the purpose of ascertaining the proportion of each of the venereal diseases present in the Army, records covering a period of twenty-two weeks in five camps, have been compared in the Surgeon-General's office. The cases of each disease, gonorrhea, syphilis, chancroid, have been segregated, also those of "mixed infection," that is, where more than one venereal infection was present in the same patient. The total of cases in these five camps through the period indicated, was 30,719. Of these cases 79 per cent were of gonorrhea, 13.7 per cent of syphilis, 4.9 per cent chancroid, whereas 2.4 per cent of the cases showed mixed infection.—*Social Hygiene Bulletin*, October, 1918. (*D. G.*)

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Treating Swimming Pools with Ozone.—The sanitation of swimming pools has been a matter of considerable difficulty for some time. This is so, because of the continuous, accumulating pollution contributed by the various bathers. Attempts to disinfect the water by keeping a germicidal substance submerged all the time, proved inefficient and undesirable. This was superseded by filtration and recirculation of the water. This process has many desirable qualifications but does not constantly maintain the purity of the water. Then hypochlorites and liquid chlorine were introducted to disinfect the water after filtration, but this method has not proved completely satisfactory for swimming pools. Copper sulphate likewise failed. Ozone, however, seems to be the most efficient and the most desirable disinfectant. The bacteria are destroyed, the organic matter in suspension and in solution is largely oxidized, the process is cheap, tastes and odors are avoided, and trained operatives are not required. The water is sterilized in a high tower through which the ozone bubbles from below. The ozone is made by passing air, dried over calcium chloride, over a silent electric brush discharge. Ozone will be produced more cheaply with an alternating current than with direct current. With alternating current, it is estimated that only two kilowatts are required to produce enough ozone to disinfect 60,000 gallons of water. At the rate of five to seven cents per kilowatt the cost of disinfection would be between eleven and fifteen cents per day.—Wallace A. Mannheimer, *Boston Medical and Surgical Journal*, November 21, 1918.

(*M. P. H.*)

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Birth Control.—The author believes that because of its far-reaching influence on the problems of poverty, overcrowding and infant mortality, birth control is of fundamental importance. The subject of birth control is very carefully studied and the effect of its use is carefully considered with regard to the health of the participants.

It is now well recognized that the fall in the birth-rate is due chiefly, if not entirely, to the volitional restriction of the size of the family, *i. e.*, to the adoption of birth control principles. Statistical evidence shows that the educated and comfortable classes have few children, of whom, under the favorable conditions provided few die; unskilled labor produces many children and loses a large proportion of them. Where the birth-rate is high, the rate of infant mortality is nearly always high also, and vice versa. Moreover it cannot be denied that large families are frequently the cause of poverty, and poverty is the great enemy of infant life. Excessive child-bearing drags a woman down and wears her out prematurely. We are coming to realize that a constitutional weakness toward tuberculosis is one most important factor determining the incidence of the disease, and that this weakness or low power of resistance may often be inherited. If properly used as it should be, birth control, by restricting the undue multiplication of the least desirable classes of the population might be a valuable eugenic instrument capable of greatly improving the quality of the race.—C. K. Millard, *Jour. of State Med.*, November, 1918. (*D. G.*)

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Hospitalization of Cases of Venereal Disease.—It is interesting to note that for the first time provision is to be made for the hospitalization of cases of venereal disease. There have recently been endowed two beds in the Buffalo General Hospital at Buffalo, N. Y., to be used exclusively for venereal cases.—*Social Hygiene Bull.*, October, 1918.

(*D. G.*)

Safe Milk for the Small Town.—A practical experiment for the determination of the feasibility of providing safe milk for the small town consuming 400 quarts or more has been tried at Tarboro, N. C. The first step necessitated the passage of an ordinance requiring all milk to be pasteurized. The pasteurization is to be done in a central plant owned and operated by the town, and the cost of all machinery needed for this purpose has been found be about $800. The daily milk supply of this town does not exceed 400 quarts. In addition the town proposes to do the collecting and the distributing of the milk. A bottle pasteurizer is to be used. It is not contemplated that the town will make money out of this undertaking, but will make it self-supporting. The increase in cost due to pasteurization will be offset partly by the saving effected by the abolition of overlapping milk routes and partly by the elimination of loss in collections.—K. E. Miller, *Public Health Reports*, December 13, 1918, 2213. (*D. G.*)

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Treatment and Disposal of Creamery Wastes.—In an experimental investigation of the treatment and disposal of creamery wastes carried out by the U. S. Public Health Service, it was demonstrated that plain sedimentation is a satisfactory treatment preliminary to sand filtration. In this article are given the details of construction of such tank and filters and the methods of operation.—E. B. Phelps, *Public Health Reports*, December 6, 1918, 2169. (*D. G.*)

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The Federal Venereal Disease Program.—The Division of Venereal Diseases in the U. S. Public Health Service was created in July, 1918, as a section to the "army bill," an appropriation of $4,000,000 was made for the campaign to control venereal diseases. This sum was made available from July 1, 1918, during two fiscal years. One million dollars was to be immediately available for state boards of health throughout the country, apportioned on the population basis. The same sum will be available on July 1, 1919, but on the condition that each state raises a sum equal to its apportionment. This condition is not imposed for 1918.

One million dollars is at once available to assist various states in caring for civilian persons "whose detention, isolation, quarantine, or commitment to institutions may be found necessary for the protection of the military and naval forces of the United States against venereal diseases."

For scientific research to discover more effective medical measures in the prevention and treatment of venereal diseases, one million dollars is appropriated; for the discovery and development of more effective educational measures in preventing venereal diseases and for related sociological and psychological research, $300,000 is appropriated. For a Division of Venereal Disease in the Public Health Service $200,000 is available.—*Social Hygiene Monthly*, October, 1918. (*D. G.*)

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Antigens in the Wassermann Reaction.—In the absence of an ideal antigen the present results indicate that a proportion of weak positive reactions will be missed if only a single antigen be employed in performing the Wassermann test. Hence it is advisable always to use both antigens (heart-cholesterol and liver-lecithin-cholesterol). Since all laboratory tests are productive of the most valuable results when the clinician and the laboratory worker collaborate intimately, the desirable procedure would appear to be that, where tests are performed with only one antigen, all sera should be preserved (*e. g.*, by freezing), so that if a positive reaction fails to be obtained in cases which are clinically suspicious, the test may be repeated with the other antigen. Of course, when the reaction is being tested for the control of treatment both antigens should be employed. —C. H. Browning, and E. L. Kennaway, *Lancet*, November 30, 1918. 733. (*D. G.*)

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Druggists and the Venereal Disease Campaign.—Approximately 45,000 retail druggists of the country are being asked to coöperate with the U. S. Public Health Service in its campaign to control venereal infection among the civilian population. A letter from Surgeon-General Rupert Blue is now being mailed to them, together with a pledge of coöperation. A copy of the pledge follows:

1. Not to prescribe or recommend any remedy for a venereal disease.

2. After this date not to purchase a "proprietary remedy" to be sold to the public for the self-treatment of a venereal disease, and not to sell any such "remedy" after December 1, 1918.

3. To refill only such prescriptions for the treatment of venereal disease as were given originally to the customer by a reputable physician who is still in charge of the case.

4. To cause literature furnished by the Surgeon-General to be handed to every person asking, without a physician's prescription, for a remedy customarily confined to the treatment of a venereal disease. Further, to direct the applicant to a reputable physician, to a board of health, or to an approved venereal clinic.—*Social Hygiene Monthly*, October 1918. (*D. G.*)

STATE HEALTH NOTES.

California.—A number of widely separated localities will be shocked at the news of the death in California of Edward A. Ingham, district health officer of the California State Board. Mr. Ingham was a native of Topeka, Kan., and a graduate of Washburn College. The egg investigations undertaken in Kansas by Dr. W. T. Sedgwick and his assistants attracted Mr. Ingham's interest and he came East and entered the Massachusetts Institute of Technology. Following graduation he remained as a member of the instructing staff till 1917, when he was appointed by the California board in charge of the Southern District, with headquarters at Los Angeles.

While in Boston Mr. Ingham conducted for the M. I. T. Sanitary Research Laboratory an investigation into the rural health conditions in the state of Massachusetts and the activities of local boards of health. He managed for the Public Health Committee of the Massachusetts Medical Society, a public school for health officers, the first of its kind in the state.

Mr. Ingham lost his life in performing his duties as a health officer during the influenza epidemic.

He was one of the pioneer group of sanitary engineers without medical degree in public health work, and was a conspicuous example of the new type of officer.

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Minnesota.—When the United States Government began to study its work against venereal disease, Minnesota was one of the first to enter the list. A Bureau of Venereal Diseases was established under the State Board of Health with a plan of attack which was based on four clearly defined approaches, each of which will be considered in these articles.

"In the first place, we recognized," writes Mabel S. Ulrich, Supervisor of Social Hygiene Education, State Board of Health, "that as long as public prostitution is allowed to persist unchecked, little can be done to control the spread of these diseases. Therefore, drastic repressive action against the trade is proposed. There are in this state adequate laws for such repression. Why are they not enforced? Chiefly because public opinion has not yet awakened to the need of such repression." The State authorities proceeded with education and now there are plans for caring for the evil in a scientific manner.

The Minnesota method departs from common procedure, which is to hale the prostitute into court, admit her to bail—which she frequently jumps—or to fine her or give her a suspended sentence and order her out of town. In the larger cities all cases are now held until an examination by the board of health determines whether or not they are diseased. Those found to be diseased are quarantined and treated until non-infectious. The period of quarantine is not coincident with their workhouse sentence. For this work hospital facilities have been arranged at the workhouses and special physicians employed by the boards of health. Every case needing investigation is followed up by the Social Service Department. It is the purpose of this division that men and women offenders be treated in precisely the same manner. Further than this a regulation has been adopted, which, while it makes it compulsory for every physician to report all cases coming to his attention, provides at the same time that the name of the patient need not be revealed, so long as proper care is exercised in protecting others from infection, and treatment is continued.

For the protection of others, however, the name is required the moment the patient exposes any one else or discontinues treatment. Every report is invariably regarded by the board of health as strictly confidential.

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New Jersey.—Wallace F. Eakins, 1st Lieutenant, Sanitary Corps, U. S. A., has been honorably discharged from the army and has returned to his position as epidemiologist of the New Jersey State Board of Health at Trenton.

Child Hygiene Work in the state of New Jersey has responded to the appeal given by the Federal Bureau and taken on a more practical form than it has had since its inauguration three years ago. Till now it has been conducted solely on educational lines, but actual work in consultation stations under care of physician and nurse has been begun both in some municipalities which had no Child Hygiene Division and in a few rural districts. The districts chosen are those which have the highest infant mortality rates, and this problem is being attacked as a complex and a many sided one.

In order to touch the work in this large way the State Bureau, while installing a uniform system, is trying to secure as much coöperation as possible. The way for correlation of public and private effort has been paved by the excellent work of the Child Welfare Committee of the Council of National Defense. With this body as a nucleus county committees are being formed through which the bureau and its workers may work for active coöperation and whose influence should be on their own account eventually to stimulate local government's act.

At present the money appropriated by this state admits of only ten stations and ten nurses,

but it is probable that next year the work will be done in a much larger way.

The bureau has four divisions each of which has a supervisor: nursing and consultation stations, midwifery, institutions, and education and extension.

Much attention is given to care of the expectant mother and to instruction for maternal nursing. Careful registration of births and deaths is required and the entire environment of mother and child is the subject of study. Another line will be that among children of pre-school age.

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New York State.—Major Henry L. K. Shaw has been released from active service in the Medical Corps of the Army at Fort Oglethorpe and will resume the directorship of the Division of Child Hygiene in the State Department of Health on January 1st. Dr. Herman F. Senftner, who has been acting director of the division, again becomes epidemiologist.

In November the work of the Bureau of Habit-Forming Drugs was transferred to the Narcotic Drug Control Department which was created by an act of the Legislature of 1918. The new department will operate under the provisions of the habit-forming drug law of 1917 until February 1, 1919, when that portion of the 1918 law relating to the sale, use, etc., of narcotic drugs becomes effective.

A novel use was made of school diet kitchens in Syracuse during the influenza epidemic. When Dr. Sears, state sanitary supervisor, discovered that many families were suffering from lack of food because the adults in these families were sick, appeal was made by him to the school authorities for the use of their diet kitchens. The scheme was financed by the American Red Cross. The cost per person at first was 4 cents; later when more nourishing food was required during convalescence the cost advanced to approximately 7 cents.

The Bureau of Venereal Diseases of the New York State Department of Health has outlined a comprehensive program on sex education and venereal control which is already under way throughout the state. It is planned to cover the state with an illustrated lecture, the idea being first to educate the people in regard to the seriousness of the menace which has complacently been allowed to exist unattacked, and later to conduct a campaign of sex education for the instruction of parents in order that they may be able to instruct their children properly.

It is planned to speak to mixed audiences and to mothers' clubs at a later date.

New York City.—Owing to a slight recrudescence of influenza extra effort was made by the Department to have the public continue every effort to keep this disease under control. While the relapse was expected it did not reach the figures anticipated. Special effort was made relative to having those who were recently convalescent seek medical attention in order to detect, if possible, any complication, more particularly tuberculosis. Several thousand additional circulars, relative to after-care and "don't spit" were received and distributed as a warning to citizens who might offend or disregard previous admonitions.

In the interests of public health the New York City Department has taken action relative to furnishing of heat in apartment houses, when contractual relations existed between landlord and tenant. Several thousand complaints were received, most of which were terminated by personal effort of the Department inspector. Some few, however, were referred for court action. Two of these have been heard and in each case the magistrate found the landlord guilty and imposed a fine of $100, which has had a very wholesome effect.

A number of reprints have been made by the New York health authorities:

No. 70—A Study of Poliomyelitis. Report of Work of Meningitis Division in the 1916 Epidemic. Dr. Josephine Neal and Dr. Harry Abramson.

No. 71—A Clinical Study of the Frequency of Lead, Turpentine and Benzine Poisoning in 400 House Painters. Dr. Louis I. Harris.

No. 72—Active Immunization of Infants Against Diphtheria. Dr. A. Zingher.

Those interested may receive copies of the above publications by addressing the Bureau of Public Health Education, Department of Health, New York City.

*

North Carolina.—There is a bank in North Carolina that is making health and sanitary home conditions a basis of credit. The officers have reached the conclusion that a man who lives in the midst of insanitary surroundings is not a good financial risk.

"Have you a sanitary privy?"

"Is your house screened against flies and mosquitoes?"

"Have the members of your family been vaccinated against smallpox and typhoid fever?"

These are some of the questions that are asked a prospective borrower. According to the bank officers they are based on sound banking experience. A man who has not taken advantage of available opportunities to protect his own health and that of his family is not the sort of customer the bank wants.

Ohio.—The *Ohio Public Health Journal* notes (abstracts being made by M. T.) that in July, 1918, 1,012 cases of gonorrhea and syphilis were reported in Ohio while in August the reports had more than doubled, being 2,101. Sixty per cent were reported through military authorities while of the remainder 517, or another 60 per cent, were received from Akron. Of this number nearly one-half were reported not by the physician but by the druggist cooperating with the health department. Using the Akron figures as a rough basis for the reports to be expected from the rest of the state it would appear that the reporting has hardly covered one-tenth of the cases.

A study of the state statistics for 1916–1917 on inflammation of the eyes of the newborn indicates roughly that one out of every hundred babies born was reported as having inflamed eyes and that in the larger cities the ratio reported was two out of every hundred. Wide variations in the number of cases reported were evident. In general, however, the proportions were higher in cities having well organized health departments, indicating, therefore, that a low number of reported cases is more a matter for investigation than congratulation.

Proportionally a far greater number of cases were reported by midwives than physicians. Investigation, however, showed that many of the cases they reported were nothing more than the mild reaction due to the use of silver nitrate solution.

To remedy this state of affairs the State Department of Health has announced its plans which have just been set forth. The full program for the control of venereal diseases will soon be set in motion by the distribution among physicians of the state of blanks for the reporting of cases of these diseases and literature for distribution to patients.

By regulations which went into effect last July, physicians in Ohio must report venereal disease cases to the State Department of Health, with certain information regarding the patient and the source of infection. Educational literature furnished by the department must be given to each patient. Such literature is being printed in nine foreign languages, as well as in English. German is not one of the nine languages used.

The venereal disease work of the state is being aided by a Federal grant of over $51,000.

The results of the 1917 mortality statistics for Ohio when compared with those for other years are of considerable interest. The tuberculosis rate is 142.97, higher than at any time since 1911, indicating the necessity of continuing the anti-tuberculosis work with unabated vigor and the establishment of additional district hospitals. Pneumonia, both lobar and broncho, has exacted a heavy toll, the total 148.46 even exceeding that for tuberculosis. The continual increase of both forms of this disease suggests the need for closer study and more drastic preventive measures than have been had in the past. Deaths among children from diarrhea have shown an encouraging drop from 60.11 to 57.87 and it is to be hoped and expected that the 1918 Baby Saving Campaign will occasion an even greater decrease when the figures for this year are compiled. Typhoid also shows an encouraging decrease but the rate, 13.24, must be still lower before the state can be truly proud of the record.

The rates for measles and whooping cough, 10.82 and 11.69 respectively, clearly demonstrate that the old notion of "letting the child have it over with" is a procedure costly in young life. The rates for this disease falls but little behind that for diphtheria.

Organic heart disease, apoplexy, Bright's disease and arterial disease continue to show an upward trend. The first stands at the head of the list with a rate of 166.08

The figures for the first four months of Ohio's "Baby Saving Campaign" which commenced April 1st, show a saving of 857 babies. The quota for the four months was 1,503 or 646 more babies than were actually saved. These figures are given without comment.

So far as Akron is concerned health functions are coming into their own, for the new charter provides for a department of public health coördinate with the other major departments, like those of law, public service, public safety. This department of health "shall consist of a health commission consisting of five citizens appointed by the chief administrator, *i. e.*, the city manager." The powers and duties of this health commission do not differ greatly from those of similar commissions in other cities. The new feature of the charter is giving the deserved prominence and dignity to it as a formal department. Heretofore the practice has been to relegate public health to a bureau in a department.

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Pennsylvania.—Dr. Francis D. Patterson, chief of the Division of Industrial Hygiene, Department of Labor and Industry, Harrisburg, Penn., is desirous of obtaining a complete list of all physicians engaged in the practice of industrial medicine. It has been the practice of this department to hold semi-annual conferences of such practitioners. In order to reach all such men, that invitations may be issued to them, it is necessary to have them on the mailing list. The next conference is set for early in 1919 so that immediate notice to Dr. Patterson with name and address, is desired.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh, and P. M. Holmes.

Health of Wool Workers.—In its Research Report, No. 12, entitled, "Hours of Work As Related to Output and Health of Workers," the National Industrial Conference Board finds that so far as health is concerned, "the limited evidence available as to the effect of the adoption of the 54-hour schedule in the wool manufacturing industry on the health of the worker suggests on the whole only unimportant changes. Improvement in health conditions was noted in only a small number of cases."

This is the third in a series of investigations undertaken by the Board in the industries, the other two being in cotton and the manufacture of boots and shoes. In discussing the conditions of workers in wool there is a lack of available statistics. It is evident, however, that the industry is comparatively free from diseases that are strictly connected with it as an occupation. Anthrax, of which a good deal has been heard, has seldom been traced to the industry in this country, although there is an increasing occurrence in the industry in Great Britain. This should be a motive for adopting all possible precautions against it and preventing it from securing a foothold in this country. Incidentally it would seem that anthrax as discovered in shaving brushes in this country and in England is due to the war demand for materials, which has induced grades of raw products and materials from unusual localities to enter the trade.

In the wool industry the Board finds that the accident risk is fairly high. In the chemical end of the establishment there are a few processes, particularly carbonizing and dyeing, which involve special health hazards and undoubtedly these processes require some special consideration. So far as tuberculosis is concerned and pneumonia, a distinctly high mortality rate is indicated. These may be related to high temperatures and humidity characteristic of certain processes in the industry. Here, however, the fact must not be forgotten that race, inheritance and personal habits are in modern considerations given important place as contributory factors. Nevertheless the rates in the wool industry are sufficiently high to be worthy of attention.

The whole problem of determining the relationships between health and industrial processes is exceedingly complex. This is made more so on account of the lack of any recognized standards of measurement. From the industrial side the complications include laborious work, long hours, piece work, speeding-up, monotony, constant standing, constant strain, chairs without backs, faulty postures, jarring processes, eye strain and loud noises. So far as mill construction is concerned there are the added features of temperature, dampness, devitalized air and the like. Then again there are conditions for which the mill is not responsible, such as race, inheritance, habits, personal hygiene and climate, and again there are other factors still, that may have divided responsibility, like scale of living, housing conditions and character of recreation.

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Effective Dust Prevention.—In the manufacture of storage batteries there is danger from lead poisoning, because the plate used in the greater number of these batteries is a lead grid covered with a paste of litharge or red lead. Handling these oxides at every stage from the time the kegs are brought into the factory to the last assembling of the pasted plates, involves more or less contact with poisonous lead dusts. It is especially in the paste mixing department and in the pasting rooms, where the oxide paste is rubbed into the grids, that litharge and red lead are likely to be spread over the floors and work benches, to be tracked to and fro by the feet of passing workmen and rise into the air in the form of a fine dust.

In most storage battery factories conscientious efforts are made to do away with this evil, sometimes by vacuum cleaning, or better, by flushing the floors. An excellent method is that in use in the Willard Storage Battery Factory in Cleveland. This method was described by the plant physician, Dr. W. H. Wood, at the meeting of the National Safety Council, in St. Louis.

In such a place the problem is to find a hygroscopic salt which shall be economical, easily used, free from injurious qualities, and interfering in no wise with the processes of cleansing the shops and of reclaiming the lead from the washwater. After experimenting Dr. Wood found that a solution of magnesium sulphate would meet all the requirements and in addition it acts as a flux for the lead.

This very simple measure is so successful that it should be given wide publicity. There seems no reason why it should not have a wide range of application, not only in factories making storage batteries but in those roasting oxides, or handling dry white lead, or in the many plants where lead dross and scraps from moulding and trimming operations cover the floor.

(*A. Hamilton.*)

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

Experimental Study of Serum Therapy in Trichinosis.—The experiments bear out the conclusion of Schwartz (*Jour. A. M. A.* 69, 884) to the effect that serum from animals convalescent from trichinosis, when injected into other animals or fed to them mixed with trichinous meat, does not inhibit the customary development of trichinæ. However, such a serum may be of decided value in combating the toxic features of trichinosis.—M. C. Hall and Meyer Wigdor, *Arch. Int. Med.* 22, 601 (1918).

✻

Prevention and Cure of Gas Gangrene by Mixed Serums.—The administration of a powerful antigangrenous serum such as that of Weinberg and Séguin is of real value in preventing the incidence of gas gangrene, not replacing but assisting surgical treatment. Employed as a curative agent in cases of advanced infection it is disintoxicating if used in sufficient quantities. The polyvalent serum of Leclainche and Vallée has a marked influence on the after-history of the cases with coincident streptococcal infections. The dilution of the serum by normal saline solution and its subcutaneous administration has made anaphylactic phenomena extremely rare.—F. Ivens, *Brit. Med. Jour.*, 3016, *p.* 425 (1918).

✻

Standardization of the Wassermann Reaction.—Description of technic employed including standardization of antigen. The author suggests that the Wassermann reaction should be reported in terms of Wassermann units, either those described by the author or some modification thereof, the figures given by each laboratory being the same whatever the technic, and such as will indicate the number of times the serum is stronger than the weakest serum which will just give definite proof that the patient has syphilis.—W. d'E. Emery, *Lancet* (*London*), 4965, *p.* 547 (1918).

✻

Bacillus Influenzæ in Sinusitis and Meningitis.—The presence of Gram-negative bacilli in direct smears or on cultures from cerebro-spinal fluid or from the accessory sinuses of the respiratory tract should be looked upon as probable B. influenzæ. This is especially true when long filamentous forms are present. There are probably two types of B. influenzæ; one which retains its original short bacillary form indefinitely on artificial media and the other which readily develops filamentous forms after a few days on moist blood agar.—G. R. Lacy, *Jour. Lab. Clin. Med.*, 4, 55 (1918).

✻

Bacteriology of Typhus.—The author was unable to cultivate from the blood of fourteen typhus patients any bacilli resembling in the least Plotz' Bacillus typhi.—*Gac. Med. de Mexico*, No. 7–12 (1916), Pub'd. Sept., 1918; *Jour. A. M. A.*, 71, 1782 (1918).

✻

The Tonsils in Streptococcus Hemolyticus Carriers.—The tonsils are the principal foci of infection in throat carriers of Streptococcus hemolyticus. Cultures from excised tonsils show streptococci in 75 per cent of cases. Crypt cultures show a higher percentage of positive results than surface cultures. Excision of the tonsils renders the throat negative in nearly all cases. Excision is the only radical method of cure. The application of various germicides had no effect.—H. J. Nichols and J. H. Bryan, *Jour. A. M. A.* 71, 1813 (1918).

✻

Complement Fixation Reaction for Tuberculosis.—The tubercle bacillus antigen of M. A. Wilson (*Jour. Immun.* 3, 345) is not anticomplementary in four times the amount capable of producing positive complement fixation with sera from the great majority of cases of active tuberculosis. Pooled complement from at least six guinea-pigs should be used in making the tests, or the complement from single pigs should be tested for its complement fixation value with known positive sera. Double the original Wassermann amount of patients' serum should be used. No report should be made until the sera have been tested, after having been kept under sterile conditions in the ice chest for from four to six days, preferably six days. The results seem to indicate that if these modifications are followed, the test is very reliable.—Hassow von Wedel, *Jour. Immun.*, 3, 351 (1918).

✻

A Prophylactic Vaccine Against Influenza.—The author describes his method of preparing vaccine from the sputum of influenzal bronchopneumonia cases. The vaccine did not contain the Pfeiffer bacillus. Pneumococcus type IV and a gram-negative bacillus predominated. The reaction is usually very slight. It is believed that the immunity lasts for a period longer than four weeks. The author

points out that the vaccine has proved its value in preventing the so-called influenza and the bronchopneumonic complications.—Warren B. Stone, *Med. Rec.*, 94, 979 (1918).

✻

Method of Preparing Bacterial Antigens.—The efficiency of a bacterial antigen is raised by the removal of the chloroform-ether soluble constituents of the dried bacteria. Standardized dry antigen preparations can be made and rendered available for work over long periods. The complement deviation reaction has limited uses in the differentiation of type within the bacterial groups studied.—James C. Small, *Jour. Immun.*, 3, 413 (1918).

✻

Meningococcus Carrier-Rate in Relation to Density of Population in Military Units—A high meningococcus carrier-rate in a military unit denotes that dangerous overcrowding exists in this unit. Severe overcrowding is usually accompanied by a carrier-rate (serological) of at least 20 per cent. The distance between beds is of paramount importance. The "peace" standard of 3 ft. between beds and 60 sq. ft. of floor space with 600 cu. ft. of air space should be adhered to if possible.—J. A. Glover, *Jour. Hyg. (Engl.)*, 17, 367 (1918).

✻

Study of Meningococci.—Fixity of type among meningococci of types I, II, III, and IV (Gordon) is not proved. Exceptions are on record and evidence is accumulating in a negative sense. The serological results obtained with type meningococci in different animals (horse, man) may entirely fail to accord with types employed as antigens. Accordingly the types differentiated in relation to the rabbit do not appear to represent independent entities.—E. W. A. Walker, *Jour. Hyg. (Engl.)*, 17, 380 (1918).

✻

Modification of Voges-Proskauer Reaction.—The use of 0.5 cc. of a 45 per cent solution of sodium hydroxide, Syracuse watch glasses, and 1 cc. of the culture results in the development of a greater number of positive Voges-Proskauer reactions in a shorter interval of time than the method given in the latest (1917) edition of "Standard Methods of Water Analysis." An incubation period of two days at 30° C. is recommended.—G. C. Bunker, E. J. Tucker and H. W. Green, *Jour. Bact.*, 3, 493 (1918).

✻

Disinfection of Diphtheria Carriers.—Insufflations of pulverized antimeningococcic serum disinfect the carriers of diphtheria bacilli just as rapidly as insufflation of powdered antidiphtheritic serum. These two methods are distinctly better than the antiseptic method. The powdered serums may act simply in a mechanical way, as an inert powder by irritating the mucosa, producing a hyperemia and drawing leucocytes to the surface.—J. Roskam, *Amm. Inst. Past.*, 32, 255 (1918); *Chem. Abst.*, 12, 2362 (1918).

✻

Tear Sign of Death.—Tears have an alkaline reaction in the living, as shown by positive tests upon more than 2,000 persons, 141 of whom had various eye inflammations. After death the reaction veers to acid. A piece of litmus paper is placed upon the eyeball and the lid pressed lightly down upon it in making the test.—A. Lecha-Marzo, *Arch. Med. Belges*, 71, 271 (1918); *Jour. A. M. A.*, 71, 1009 (1918).

✻

Complement Fixation in Tuberculosis.—The technic of the reaction including preparation of antigen is described. Not all guinea-pigs' serums are efficient for tuberculosis complement fixation. The serum from each guinea-pig should be tested for fixability with tuberculosis serum before pooling the complement for diagnostic tests.—M. A. Wilson, *Jour. Immun.*, 3, 345 (1918).

✻

Gram-Staining of Bacteria—A review of work previously done to explain the Gram-staining reaction.—Ernst Deuzen, *Z. Hyg.*, 85, 235 (1918).

✻

Pathologic Anatomy of Rabies.—The filtrability of rabies virus seems to disprove any assumption as to the Negri bodies being the parasite of rabies. It is possible that the spores might pass through the filter. The author declares that the time has come for revision of the problem of filtrable pathogenic viruses.—I. L. Apphatie, *Anales Inst. Modelo Clin. Med. (Buenos Aires)*, 3, 73 (1918).

✻

Media for Isolation of B. Influenzæ.—For the isolation of *B. influenzæ* trypsinized blood-agar is used. In a series of test tubes, containing 8 cc. of sterile normal saline solution to which has been added 0.25 per cent of anhydrous sodium carbonate, is placed 0.5 cc. of sterile trypsin. The tubes are incubated to test sterility, and, if sterile, 2 cc. of blood are added to each. The tubes are then placed in the incubator and shaken from time to time until the blood is completely digested and of a brown color.

For the purpose of growing the *B. influenzæ* in subcultures this medium is excellent, but for the purpose of isolation the blood must be digested for a longer period, as it is only after 10 to 14 days' incubation that the medium will be found to have developed its full inhibitory properties as regards the growth of other bacteria.

Trypsinized blood medium has the disadvantage, however, that the influenza bacillus tends to die out on it very easily. For the purpose of keeping the strains going the author found pigeon's blood-agar most suitable. Pigeon's blood is added to sterile distilled water in the proportion of 1 to 10 and then 1 cc. of a sterile ¼ per cent solution of anhydrous sodium carbonate is added. The agar is prepared by adding 1 cc. of this laked blood to 5 cc. of melted agar.

Altogether 56 unselected cases have been examined and from these the bacillus of influenza was recovered on 42 occasions (75.0 per cent.).—McIntosh, J. *Lancet*, Nov. 23, 1918, 695.

(*D. G.*)

*

Failure of an Influenza Vaccine.—The bacterial vaccine was furnished by the Chicago Health Department. It was a mixed vaccine containing *B. influenzæ*, pneumococci (all four types), *Streptococcus hemolyticus* and *Staphylococcus pyogenes aureus*. The persons vaccinated were patients at a California institution for the insane; 780 people, all of whom were aged 41 or less, were selected for this experiment. One half of this number were vaccinated. The vaccination was completed November 15, and fortunately the institution remained free from influenza until November 26, when cases began to appear, although at this time the epidemic had almost disappeared from the community at large. Of the vaccinated group, 119 developed influenza and 23 pneumonia; of the not-vaccinated, 103 developed influenza and 17 pneumonia. It appears clear from the evidence afforded by these observations that no protection was afforded by the vaccine.—G. W. McCoy, V. B. Murray and A. L. Teeter, *Jour. A. M. A.*, 71, 1997 (1918).

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A Selective Medium for B. Influenzæ.—An attempt has been made to develop a medium that would prevent the growth of most bacteria present in throat cultures or sputum other than *B. influenzæ*. The medium recommended for the purpose has the following formula:

Agar	94 cc.
2 per cent sol. sodium oleate	5 cc.
Suspension of red blood cells	1 cc.

Oleate-hemoglobin bouillon may be prepared in the same way by substituting broth in the place of agar in the foregoing formula. Cultures taken from the nasopharynx should be streaked on the surface of the oleate-hemoglobin medium. Similar plates should also be made from the sputum. All culture plates should be incubated for 48 hours at 37° C. The use of this medium has led to an increase in the percentage of positive findings of *B. influenzæ* in actual cases of the disease and in convalescents. Pneumococci, streptococci of the hemolytic and viridans variety fail to develop on this medium.—O. T. Avery, *Jour. A. M. A.*, 71, 2050 (1918).

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Citrated Blood in the Treatment of Influenza Pneumonia.—The use of citrated blood from convalescent influenzal patients administered to patients when pneumonia followed the influenza appeared to have a decided beneficial effect, particularly if given early. Beyond the third day of the pneumonia it was of little value. That the citrated blood establishes an immunity to *B. influenzæ* is inferred but not proved.—W. W. G. Maclachlan and W. J. Fetter, *Jour. A. M. A.*, 71, 2053 (1918).

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Method for Isolation and Identification of Dysenteric Bacilli.—Fresh specimens preferably containing blood and mucus should be cultivated promptly. Mediums for the isolation of dysenteric baccilli should not have a marked alkaline reaction or an excessive amount of inhibitive dyes. Mediums neutral or only slightly alkaline are most suitable. Veal infusion agar is a much more satisfactory base for differential plate cultures for the isolation of dysenteric bacilli than is beef infusion or peptic digest agar. Eosin-methylene blue and modified Endo plates (P_H^+ 7.6 to 7.8) made with veal agar exert little or no inhibitive effects and permit the colonies to grow to almost twice their size on other mediums. Since the dye medium is apt to be somewhat inhibitive for the Shiga type of dysentery bacillus, it should always be used together with a modified Endo plate. The method given permits a presumptive and confirmatory diagnosis of bacillary dysentery in a very short time.—I. J. Kligler and P. K. Olitsky, *Jour. A. M. A.*, 71, 2126 (1918).

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Typhus Fever.—The Weil-Felix agglutination test is an invaluable aid in the diagnosis of typhus fever. Frequently the reaction appears only in the disease and as a rule rapidly increases in titre. A rapid agglutination in a dilution of $^1/_{10}$, while not absolutely reliable, is sufficiently suspicious to justify the isolation of the case. This is especially true of individuals uninoculated with T. A. B. or cholera. The serum of 50 uninoculated natives failed to give a reaction even in a dilution of 1 to 10. This test is particularly valuable in the case of natives in whom it may be difficult to distinguish clinically between severe relapsing fever and typhus. The organism employed in the agglutination test is a strain known as X 19. A description of the organism is given.—C. M. Craig and N. H. Fairley, *Lancet*, No. 4960, p. 385 (1918).

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A PLAN FOR A MORE EFFECTIVE FEDERAL AND STATE HEALTH ADMINISTRATION.

FREDERICK L. HOFFMAN, LL. D.,
Newark, N. J.

Read before General Sessions, American Public Health Association, at Chicago, Ill,, December 10, 1918.

IT is not only desirable but an essential prerequisite of social progress that inquiry shall be made from time to time concerning the present value and further perfection of existing methods or instrumentalities ministering to human welfare and human wants. Health is so obviously of the first importance that its protection and more or less effective conservation have from time immemorial been made at least a matter of individual, if not collective, concern. Most of the so-called health legislation from the earliest times to the present day, however, has been concerned with the correction of ascertained sanitary or related imperfections, rather than with anticipatory action having for its purpose the prevention of disease and premature death. Much of what is called preventive medicine, even at the present time, is in the direction of prevention of further damage and harm rather than of a character deliberately designed to preclude the occurrence or inception of dangers which so frequently, and practically continuously, threaten the individual and collective welfare in what, for want of a better term, is comprehended as the vast field of public hygiene. The fact must not be overlooked that in its origin, every modern public health organization rests primarily upon the principle of quarantine as applied in the case of recognized infectious or contagious diseases, and the, if necessary, drastic exercise of the police powers on the part of the government, the states, and the civil subdivisions thereof.

Probably the earliest quarantine legislation in this country was adopted by the General Court of Massachusetts in 1647 or 1648, to prevent the introduction of the plague (probably yellow fever) "which was then devastating the West Indies." Unquestionably, and in a large measure, effective quarantine regulations, whether maritime or local, constitute, however, but a fraction of modern health legislation, which has gradually been extended from communities to persons and which now comprehends every conceivable sphere or function of individual and social life. Even an enumeration of the subject-matter of modern public health activities would unduly enlarge upon the present discussion, which is chiefly concerned with future possibilities rather than with past achievements. What is today understood as health conservation concerns largely such an-

ticipatory action as by general consent seems feasible of enforcement, if not in the form of specific statutory requirement, at least in the nature of improved personal conduct in matters concerning both personal and public hygiene. In the broadest sense, therefore, modern health activities have become largely educational, with a view of securing on the part of each and all concerned a better understanding of the principles which govern in the attainment of better health and greater freedom from disease, a more perfect adaptation of the human organism to its environment, and a substantial prolongation of life. The acceptance of this principle has enormously increased the sphere and the function of public health administration and made perfectly obvious the inadequacy of existing methods, whether federal, state or municipal, to effectively serve the true interests of all the people. What in former years, when the nature of epidemic diseases was not understood, was a necessary exercise of the police powers has in modern times become of rather secondary importance. All that is generally comprehended under so-called sanitary legislation, such as the burial of the dead, the control of nuisances, the protection of water supplies, sewage, drainage, etc., is no longer within the realm of debatable public consideration, but is accepted as a paramount necessity of and the rightful prerequisite to a wholesome community life. Even though the principle has not as yet been generally accepted that failure in these matters on the part of the responsible authorities should constitute an indictable offense, it is nevertheless a safe conclusion that such a view is gaining ground, and a number of court decisions seem to settle the question that every community is in duty bound to furnish pure water, to abate dangerous nuisances, to prevent the further spread of communicable diseases, etc. But practically all that concerns the health of the individual and his or her own physical well-being, is still considered primarily and essentially a matter of personal concern only.

It is of the utmost importance that this distinction should be kept clearly in mind in all discussions of a broader national and state health policy. It may then be said that instead of the individual of today being concerned chiefly in the efficient performance of an important but limited state function regarding himself or his family, the modern conception is rather the reverse in that the government or the state is profoundly more interested in the most successful adaptation of each and every individual to his or her environment, be that what it may. Once that this as yet but very imperfectly conceived principle is generally approved, the urgency of a complete remodeling of our federal and state health organizations becomes self-evident. In answer to the argument that such a change would be revolutionary and opposed to traditional conceptions of the freedom of the person, the reply is that, quite to the contrary, a much lesser degree of public and private interference will become necessary, once that the required coöperation of *all* the people in the furtherance of collective health measures is secured. As has been well said by one of the very foremost American authorities on the theory of the state and in defense of decidedly higher conceptions of human society, properly conceived as an incorporated association, inclusive of all the persons composing it,

"It has been found out by experience that *the whole*, by its superior organization, can do some things to which individuals are unequal"; and furthermore, "Will it be said that by such state action individuals are not alike benefited, and so there is a sort of injustice in it? The ready answer is that this is unavoidable, and that no one of these modes of action ought to pertain to society and the state which on the whole does not contribute to the com-

mon good. When courts are instituted for the redress of wrongs, multitudes go through the world who may never have been wronged, and yet were there no courts they might have been wronged daily. Public roads are of no direct good to those who never travel. Great breakwaters and a system of lighthouses help shippers only, in the first instance, and men complain of taxes for such constructions, forgetting that, apart from humanity aiming at the safety of sailors, the prices of imports would be affected by the greater risks of vessels."

Substitute in these illustrations the health of the community as represented by the wide range in the physical well-being of the vast multitude which compose it, any one or all of which are affected to a varying degree by the measures adopted as likely to benefit or improve it, and the parallel is reasonably exact. In other words, the health of the individual, his physical well-being, his strength of disease resistance, his immunity to infectious or contagious diseases, his successful adaptation to ever-changing environmental conditions, etc., should be made the primary concern of the future state instead of being often a matter of mere incidental consideration, as is practically the case at the present time.

Under such a conception the modern health department would assume the functions of a general health *administration* concerned with all the matters which affect the health and physical welfare of the people, and not merely a function sustained almost exclusively by the police powers of the Federal government or the state, and limited in its actual effective operation to a comparatively small, however supremely important, group of activities. No plan as yet proposed by anyone concerned with these matters rests upon such a new principle, or set of principles, but, one and all, the proposals for changes or reforms are merely a modification of a thoroughly restricted theory of health control; conditioned chiefly by the principle of public quarantine and the control of the person under the police powers when found to be afflicted with some contagious or infectious disease, and the control of the environment in matters of obvious public nuisances menacing the health of the people in more or less clearly perceived directions.

Considering that all organized Federal and state health activities are of comparatively recent date; that the earlier boards of health were chiefly concerned with the temporary control of great epidemics; that even so advanced a state as Massachusetts has had a state board of health only since 1869, reorganized in 1886, and that our present Federal public health service dates only from 1903, when broader health activities were recognized in the act excluding immigrants affected with loathsome or dangerous contagious disease, and subjecting such immigrants to medical examination, the progress which has been made is profoundly gratifying, however regrettable it may be that a thoroughly worked out plan, resting upon new principles of personal and public hygiene, should not long since have come into existence. Yet it has been properly pointed out with reference to the first state board of health of Massachusetts, that the same was commanded to take "cognizance of the interests of health and life," and that it was only made a secondary function of the board to study the causes of disease and death. As stated by Professor Whipple in his work on "State Sanitation," "The order in which these subjects are named is not without significance. Health is a great issue, and health is something more than the absence of disease. Health demands not only freedom from disease but a clean environment, comfortable and enjoyable conditions of life, suitable food, satisfactory provisions for work and play and the raising of children," but health is infinitely more than this. Professor

Whipple himself was under the influence of the earlier conception that the functions of a state department of health are primarily concerned, as of course they had to be, with the control of the environment in its relation to the present. The view, however, to be emphasized, and as far as practicable to be supported by the required evidence, maintains that the primary duty of the modern state is to concern itself with the welfare of the person and the successful adaptation of each to his environment, be that what it may; for the wide variations in environmental conditions make absolute uniformity in law, and legislation of rules and regulations of so-called standards frequently undesirable. It has been said in this connection, though, of course, subject to qualification, that, as regards the health of the individual, "The question of muscular strength, of girth of chest, of size, has naught to do with health, the sole test being the adaptability of the body to continue under the circumstances of life in which it is placed—*i.e.*, under its environment." Just because it is so easy and convenient to live by a good rule rather than by trained intelligence and in the light of a thorough understanding of bodily functions, their limitations, their possible impairment, exceptional strength or weakness in individual cases; existence by a hard and fast rule is as likely to prove disastrous as, conversely, by the disregard of common sense requirements applicable to one and all. For, as said by Dr. A. E. Bridger, in his treatise on "Man and His Maladies or the Way to Health,"

> "It follows as a necessary corollary that there can be no general arbitrary standards such as our one-idea men are so fond of assuming, no one perfect diet, no one perfect mode of life, no one fixed amount of ozone in the air, which would, had man but the grace to follow their wise counsels, regenerate mankind, and make all men healthy, wealthy and wise; and that no one fixed combination of these would, or could, ever suffice to that end; and this simply because, as no two men coincide precisely in construction and in the amount, variety, and distribution of forces within the body, no one set of conditions can possibly be adaptable to the whole mass of humanity."

There is a profound truth contained in the foregoing sentence which has, broadly speaking, been ignored in most of the educational efforts carried on during recent years in public health activities, in which, in theory, an average man or an average human type is assumed, although, as a matter of fact, such a concept is merely statistical or philosophical but never real. *Man* defies analysis and subjection to the rigid principles deduced from a study of collective phenomena. After all, every man or woman is, first and last, an individual, and though by means of statistical methods certain average types are clearly to be differentiated from other average types, yet nevertheless there is nearly always a major portion of similarity, at the one extreme, and a major portion of pronounced variability, at the other. In the words of Prof. Alfred C. Haddon, in the introduction to his admirable treatise on "The Study of Man":

> "It seems strange that man should study everything in heaven and earth and largely neglect the study of himself, yet this is what has virtually happened. Anthropology, the study of man, is the youngest of the sciences, but who will say that it is the least important? We may, perhaps, find one reason for this neglect in the peculiar complexity of the subject and the difficulty there is in approaching it from a dispassionate point of view; there are so many preconceived opinions which have to be removed, and this is always a thankless task. Even now the scope and significance of anthropology have scarcely been recognized."

The health service of the future, I am fully convinced, will rest more upon the teachings and practical conclusions of anthropology, and particularly physical anthropology, as chiefly concerned with the ascertainment of the normal human

physique; normal physical standards of bodily proportions and growth, and observed departures therefrom, especially during the early years of life. In brief, I believe that a rational health administration, concerned primarily with the health of the individual, must have its beginnings in a thoroughly well worked out department of physical anthropology, devoted to the eminently practical task of supervising the growth and development of the nation's childhood, and continued through the period of early and late adolescence, inclusive of the entrance into industry or whatsoever vocations or pursuits or activities may be followed prior to the attainment of complete maturity.*

In 1904 a classical report was made by an exceedingly able Departmental Committee appointed by the British Government to inquire into the subject of physical deterioration. The recommendations made by that committee, however, were contemptuously disregarded! Had they been followed, there would be less anxiety today concerning the future physical well-being of the people of the United Kingdom. The conclusions advanced by that committee are applicable to every civilized and more or less industrially developed country. Among the principal recommendations of the committee were (1) the suggestion for an anthropometric survey, which should have for its object the periodic taking of measurements of children and young persons in schools and factories; (2) a register of sickness not confined to infectious diseases; and (3) an advisory council "representing the Department of State, within whose province questions touching the physical well-being of the people fall, with the addition of members nominated by the medical corporations and others whose duty it would be not only to receive and apply the information derived from the anthropometric survey, and the register of sickness, but also to advise the government on all legislative and administrative points concerning public health in respect of which state interference might be expedient."

There can be no entirely effective Federal or state health administration which continues to ignore the physical facts of individual life and which does not concern itself with the conclusions derived from collective investigations concerning physical progress and physical well-being; yet, broadly speaking, in not even the most advanced civilized countries are efforts being made to first ascertain the true physical status of the population and the variations in health and growth from time to time, whether towards physical improvement or physical deterioration, as the case may be. Furthermore, and still more lamentable, is the fact that in not even the most advanced countries are such fragmentary data as exist intelligently utilized, but, quite to the contrary, are contemptuously disregarded as needless to the higher requirements of an intelligent policy of government resting upon the declared principle of general welfare.*

A beginning has fortunately been made in this country through the United States Children's Bureau to initiate a plan for the systematic measurement of children of pre-school age, subsequently, no doubt, to be followed by the introduction of systematic measurements of children during the teaching period from the primary grade to the university. It is true, of course, that vast numbers of children

* Some exceptionally valuable data on physical growth and development are included in the first three chapters of Prof. G. Stanley Hall's treatise on "Adolescence," New York, 1905.

* For additional observations of my own on this important question see article on "Some Vital Statistics of Children of School Age," the School Review, December, 1913; see also my address on the "Physical Care of Children," Medical Review of Reviews, April, 1916.

are being measured in school or out, and that equally vast numbers of measurements are made of young persons in industry, in the military service, etc. The lamentable fact, however, is that these measurements are, in the first place, crudely made; in the second, the prevailing standards of normal height and weight, chest expansion, etc., are seriously deficient in scientific accuracy; and in the third place, the ascertained deficiencies, or departures from the normal are not made a matter of serious concern on the part of the school or the parents, or the medical profession, or all combined. Now, a modern state, resting its claims for preëminence upon a thoroughly healthy population, can be such only if standards of physical health and well-being are correctly ascertained and then properly applied to the correction of errors or deficiencies in growth or development in the very earliest stage of cognizable departures from the normal. It serves but a very limited, if any, purpose to ascertain such errors after they have become thoroughly established and possibly been incorporated in the mature development of the body. What is here said of the simple requirements of physical anthropology applies, of course, with much greater force to the broader needs of physical examinations. By physical examination is meant an amplified medical examination, which cannot be made properly by the physical examiner, governed too exclusively by the special requirements of physical anthropology. Unless, however, physicians are trained in making physical examinations they are just as likely to arrive at erroneous conclusions, most of all when, as is usually the case, the physical examination is made in a perfunctory manner and the judgment is guided by more or less misleading standards, as when medical conclusions are arrived at by physical anthropologists.* All such examinations, as, for illustration, those for defects of vision, hearing, dentition, spinal curvature, etc., require extreme care if latent tendencies towards future serious defects and possible deformities are to be disclosed. There is, therefore, the utmost urgency that this aspect of modern health administration should receive prior consideration if the future health of the nation is to rest upon a strictly scientific as well as thoroughly practical foundation.

The questions involved in this suggestion have received the serious attention of the Committee on Race in Relation to Disease (Civilian Records), of the National Research Council. That committee has recommended a standardized form of measurements and medical examination, with a due regard to the racial antecedents of the person examined,

* The Standard Child Labor Bill as recently introduced with slight modifications in West Virginia provides for "a certificate signed by a medical inspector of schools or public health officer stating that the child has been examined by him and in his opinion has reached the normal development of a child of its age, and is in sound health and physically able to be employed in the occupation in which the child intends to engage." With reference to proof of age a certificate is required, "signed by the public health physician or a public school physician, specifying what in the opinion of such physician is the physical age of the child," and that "such certificate shall show the height and weight of the child and other facts concerning its physical development revealed by examination and upon which the opinion of the physician as to the physical age of the child is based. In determining such physical age the physician shall require that the school record or the school census record showing the child's age be submitted as supplementary evidence." But as a matter of fact there are not, strictly speaking, as yet any trustworthy physical standards of age, growth or vocational fitness. Such standards can be developed only out of the data which are now being collected, but which will be seriously misleading unless the tabulation and analysis and resulting averages are with a due regard to the racial antecedents of the child, or, more precisely, the race of the father or the mother or the races of both.

It may be suggested here that the term nationality in investigations of this kind is grossly misleading and scientifically of no value. The nationality of a naturalized Italian is American; the nativity of an Italian, irrespective of citizenship, is *Italy;* the race of an Italian is with few exceptions the same as the nativity, but the race of an American-born child of Italian parentage is Italian, and not American. The most difficult complications arise in the correct racial differentiation of the immigrant stock from certain central European countries, where nativity and race are frequently confused. The term nationality should never be used in investigations of this kind.

chiefly, for the time being, limited to persons employed in industrial establishments. The committee clearly realized the importance of accuracy and thoroughness in the physical examination of adult applicants for employment, a sound physique being a prerequisite for the best possible results in industrial establishments. In other words, the same conclusions which apply to infants and children of pre-school age which are recognized by the Children's Bureau as applicable to children of school age and post-school age and enforced in many schools, public and private, and made mandatory in some by the use of school inspectors, etc., are equally applicable to vocational training and to vocational activity, but particularly so during the years of late adolescence or just before complete maturity has been attained. A national and local health administration, resting its beneficent activity upon such a basis, cannot but achieve measurably higher results than have been secured under the decidedly more restricted functions of public health and state medicine as followed at the present time.*

The second prerequisite for a rational and effective public health administration is *the accurate and complete registration of all serious illnesses*, whether in private practice or in institutions under medical supervision and control. What has properly been called the "wasted records of disease" constitute, by their non-use at the present time, an indictment of the public health authorities and the medical profession as indifferent to the most vital facts which concern national health and well-being. The conclusions drawn from mortality statistics are naturally of a very high order of intrinsic value, but after all they serve rather historical or retrospective purposes, and quite frequently the lessons drawn therefrom are no longer applicable to a possibly completely changed state of affairs. The statistics of communicable or transmissible diseases are frequently limited chiefly to the acute infectious diseases of infancy, as to which the enforcement of drastic quarantine regulations is least difficult. The reporting of such a disease as tuberculosis is still far from having attained even a reasonable degree of approximate accuracy, so that for practical purposes most of the data are useless and misleading. That much can be done in the direction of broadening the plan and scope of such disease reporting has been made evident by the gratifying results in the state of Mississippi, where trustworthy returns are now being made by over 90 per cent of the physicians throughout the state. The reluctance on the part of the medical profession and the unwillingness frequently shown to completely fill out certificates of communicable diseases and to promptly forward the required information to the central office of the state or local board of health are but further evidence of a failure on the part of the medical profession to clearly realize its public status and semi-official relations to the government. As perhaps the most conspicuous illustration of unwillingness or indifference in this respect mention may be made of the failure of a large number of physicians in practice in the Sacramento Valley of California to promptly and accurately report current cases of malaria at a time when the increasing frequency of the disease, in consequence of the extension of irrigation and rice-growing projects, constitutes a serious menace to the present and future health and welfare of the people of the

* In a collection of papers on Army Anthropometry and Medical Rejection Statistics (Newark, N. J., 1918, Prudential Press), I have brought together a considerable amount of useful information from American and foreign sources, not generally accessible. The address emphasizes the urgency of much more rigid conformity to strictly scientific requirements, if results of really practical and lasting value are to be secured.

state. Equally lamentable is the apathy on the part of the state health authorities to bring about the drastic enforcement of the official rules and regulations which require such reporting but which are often treated with official indifference little short of contempt.*

Objections will be raised to the suggestion that the reporting of serious diseases, including such, for illustration, as diseases of the heart and circulatory system, of the urinary system, of the respiratory system, all forms of tumors, etc., would impose a very considerable amount of additional clerical labor upon more or less overworked physicians in private practice, while, on the other hand, there would be the risk of making public information considered at law entirely confidential between patient and physician. The answer is that the physician would not be required to communicate the name of the person concerned, but only certain essential statistical facts such as age, race, occupation, locality, etc., together with the nature of the disease, the duration of the treatment and the results thereof, conforming, broadly speaking, to the practice which now prevails in private and public hospitals. The only reason why the term "serious disease" is used is that, for the present, no complete list of such diseases as would most urgently require reporting is offered, and to make it clear that there is no intention of imposing upon the medical profession the very considerable burden of reporting all trivial ailments, of slight statistical, medical or economic value. It is precisely on this ground that the most serious objections lie against the compulsory system of health insurance, in that no discrimination is exercised in the form of treatment and that the major portion of time, thought and expense is devoted to trivial and partly imaginary ailments, to the serious disadvantage of patients in urgent need of highly specialized skill, prolonged nursing care, etc. In medicine, as in everyday life, a choice must be made between that which is of major and that which is of minor importance. The same regrettable errors which underlie our public library management impair the practice of compulsory sickness insurance, in that in the former most of the public money is wasted on books or periodicals practically within the reach of any one, while the more costly works of reference, scientific periodicals, etc., urgently required by earnest students seeking to advance the interests of some one branch of science or another, are generally not available. Neither in Germany nor in England, under social insurance, are those who are most in need of thoroughly qualified medical or surgical skill, prolonged nursing care, surgical or other appliances, high-priced medicines, costly institutional treatment, radium, X-ray, etc., cared for as their condition most urgently demands.* For these and many other reasons it would not seem advisable to require the reporting of minor or trivial ailments such as constitute in everyday practice a large proportion of the cases, having neither much pathological nor sociological significance; but it is insisted that the more serious types of disease should be systematically and accurately reported, so that their respective degree of frequency occurrence may be known and thoroughly understood. No real progress can be made in public

* See in this connection the observations and data on the failure of the U. S. Public Health Service to secure complete returns of malaria morbidity through the coöperation of practicing physicians in the Southern States as set forth in my address on "Malaria in Peace and War," prepared for the National Committee on Malaria, Prudential Press, 1918.

* For an extended discussion of the more involved aspects of compulsory health insurance, see my address on "Facts and Fallacies of Compulsory Health Insurance," Newark, 1918, and a paper on "The Failure of German Compulsory Health Insurance—A War Revelation," read before the Association of Life Insurance Presidents, New York, December 6, 1913.

health, in the larger sense, until the essential facts of health and physical well-being are made available and practically applied by those qualified to do so.

The third fundamental principle of modern health administration is a thoroughly well worked out limited *state medical service*, including under that term, all of the medical services now rendered in connection with public institutions, poor-law establishments, schools, state and municipal dispensaries, clinics of all kinds, etc. The existing state medical service is already quite considerable and requires only to be amplified and reorganized on a more substantial and well considered plan. The new organization, however, must rest upon a totally different principle from that of the old one, and that is the clear recognition of the duty of the state to afford the best qualified medical and surgical service to all those who are in need thereof, even though they are unable to pay therefor the usual and not unreasonable charges common in everyday private practice. To overcome the difficulty of the stigma of apparent poor relief the state medical service should be scrupulously kept outside of any general poor relief administration, and, being supported by public taxation, conform in its essentials as a public utility to the same governing principles which apply to the use of public libraries, public schools, etc. Certain practical difficulties, no doubt, would arise at the outset of such a proposed state medical service, but it is the only alternative to the existing chaotic condition, which, in many respects, is in urgent need of radical reforms.

Dr. Hoffman's article will be concluded in the April number of the JOURNAL.

ADJUSTMENTS IN HEALTH ADMINISTRATION FOR INDUSTRIAL DISEASES ON ACCOUNT OF THE WAR.

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Read before Sociological Section, American Public Health Association, at Chicago, Ill., December 10, 1918.

I. THE PROBLEMS.

MOST of the war and peace problems are the application of certain well-known principles to expanded industries, to more people, and to different kinds of people. The first problem is that of endeavoring to keep all workers on the job so far as ability to work is concerned. The second problem is to adjust a continually increasing number of women, older people, and, in some instances, youths, to industries and processes which have been more or less foreign to them heretofore. The third problem is to down any idea that there should be any relaxation of sanitary regulations or public hygiene. The fourth problem is to prohibit undue fatigue—not by more study into the subject, for there is little time for research work at present, but by a strict application of the principles already developed, especially those in regard to hours of work, the limitation of overtime, the advantage of rest intervals, the necessity for proper food and enough of it, and of health working environment. The fifth problem is one ably stated by Levy at the last meeting of the State and Territorial Health Officer in June,—that of not only maintaining average vitality but of raising the average vitality. The sixth problem is to overcome the indifference which has possessed so many people in the midst of personal prosperity, lots of jobs, and the speed mania. The seventh and last

problem is to continue the spread of fundamental information calculated to save waste; in this case, as on the battlefield itself, human waste.

II. Expansion the Principal Adjustment.

While the condition of war discovered a few new situations in the matter of industrial hygiene and industrial diseases, the state of war served one great purpose —to uncover to the world the possibilities in administration and supervision of these subjects.

Industrial diseases have been more or less a feature in the work of some city and state health departments for several years—many years, in fact, in the case of Massachusetts. It is now only a matter of brief time before this subject becomes a feature of every public health office.

At the very time the services of these offices were most needed and as meager as were the facilities in the country at hand to cope with industrial diseases, those agencies engaged in this line of work became seriously curtailed by withdrawals of personnel to various forms of active service. The increased demand with the decreased facilities became apparent to the world at large when labor shortage demanded the highest efficiency of labor at hand. Now that Peace is declared that demand exists even more acutely, for problems even larger than fighting are at hand.

One of the first adjustments to meet the present situation, with the meager personnel, is to change from the work of new investigations, surveys and research to the immediate spread and application of knowledge already at hand.

III. An Example.

One establishment employing over 5,000 women in Ohio found that it could make timers for exploding shells at a certain rate of production provided room temperature was maintained at 70° F. and humidity 60 per cent. To more than make good, they overdid it. Temperature as high as 85° F. and humidity to 75 per cent were allowed. They found, however, that there was an unusual amount and type of sickness prevalent which threatened disaster to production altogether. After consultation with the State Health Department a reduction in working temperature and in humidity, which cost less to secure, resulted in a 10 per cent increase in production almost from the day the change took place, and in a marked decrease of absences and quittings as well as the disappearance of the peculiar health complaints which had previously obtained. In this way it can be shown through every industrial concern that production and health conservancy go hand in hand and that the presence of industrial health hazards, which are discoverable by systematic inspection, spells lessened production and more trouble with human machines.

IV. The Opportunity.

The shortage in man-power has resulted in new forms of economics. That which is at hand must be saved, and this point is so seriously recognized by industries that a willing ear is given to every plan proposed for conserving labor. Money is plentiful and much of it is readily forthcoming for the bettering of sanitation and the promotion of hygiene in all industries. Advantage should be taken of this situation and the proper plans devised for able assistance.

V. The Procedure.

I can suggest some methods of procedure. To the few who are in the field, I would say to do more in a wholesale way, by giving attention to whole industries as a class than by giving personal attention to a few establishments here and there; more office work and less field work; more

reached by letters or leaflets and less by personal visits. In order that all classes of society may be reached, education in the prevention of industrial diseases and in hygiology must be extended to schools; first, to intensive graduate training in short-term courses in medical and engineering schools; at the same time, introduction of these same subjects into undergraduate work at colleges and at high school and grammar schools. There should be, for some time, attention given only to principles and facts and little to theories. An immense amount of industrial hygiene is personal hygiene, and this feature must be made the subject of popularization among pupils and workers by every educational method devisable.

It is necessary to assist every properly established agency or organization which is already in the field. For the accident features and to some extent the health features, we have the National Safety Council and the American Museum of Safety. For the hygiene and sanitation features, we have the Federal Health Service, recently greatly expanded in this direction. We have also our own Association. Every state has its state health department. There are also the well-organized health departments in the larger cities, few of which have yet included the subject of industrial hygiene in their programs.

There must also be a more rapid extension of the idea of a selection of workers for different occupations, in much the same way as selections are made for those in the army service. The first step in selection is physical examinations. For those who do not pass "first call," and thereby become eligible to accept most any occupation there are numerous other occupations and callings. The principle of rehabilitation should be made to apply to the sick or injured worker as much as to the soldier.

VI. Distribution of Costs of Mal-Hygiene.

It is becoming more and more obvious that organized insurance against sickness among workers is just as much needed as similar insurance against accidents, and as much so for industrial workers as for troops.

VII. The Federal Health Service's Program.

We see that at this same session the United States Public Health Service is taking the lead in its "War Program," first published in Public Health Reports, September 27, 1918, in which Section 10 on "Industrial Medicine," Section 11 on "Railway Sanitation," Section 15 on "Health Standards," Section 16 on "Health Education," and Section 17 on "The Collection of Morbidity Reports," outline a definite plan for increasing the efficiency of the human factor in industry. We are going to see that the Public Health Service assumes a gradual extension of its activities, not only to the welfare of federal employees and industries contracting with the government, but to all industries necessary for the maintenance of national and local welfare.

VIII. Present Day Advantages.

In conclusion, I would say that as a result of the Great War, the world everywhere recognizes the wisdom and the merits of good hygiene and good sanitation, and that there are a thousand people willing to give ear to anything along this line to one a couple of years ago. Through the agencies mentioned, it is possible and necessary to push the knowledge already at hand, and this in a wholesale manner.

DEMOCRACY AND PUBLIC HEALTH ADMINISTRATION.*

CHARLES J. HASTINGS, M. D., C. M., L. R. C. P. I.

Address of the President, American Public Health Association, December 9, 1918.

(*Concluded.*)

OUR NATIONAL FITNESS.

The fit have had to be separated from the unfit. Consequently we have been taking an inventory of our physical assets, with results that have been amazing. From 50 to 75 per cent of our volunteers, draftees and conscripts have been found physically unfit for military service, and these have been for the most part the victims of preventable and curable diseases and physical defects.

Fifty thousand were rejected from your first draft on account of tuberculosis. These had all been engaged in active pursuits, the vast majority having no knowledge of the danger that was lurking within them. Government reports show that 66 per cent of the first million volunteers for the army and navy were rejected as physically unfit. It is true that the physical requirements were high, and were subsequently relaxed, yet they were not higher than they should be to ensure the physical soundness that our people are entitled to, and that in the interests of the nations should be maintained, whether it be for military or civil service.

In this connection, it is interesting to note that similar results are being found among the school children where a complete physical examination is made on entering the schools. Here approximately 50 per cent are found defective and have defects of such a character as to require them to be referred to their family physician or some hospital clinic for correction. To add to this tragedy which these examinations reveal of pre-war conditions, we find that there have been approximately seven millions of those who have been found fit, of the best man power of all nations, that have paid the extreme penalty, and probably an equal number permanently disabled.

What about the ravages of the invisible foes of the race? What about the conditions that are responsible for those that have been found unfit for active service? What about the conditions that are responsible for the physical defects in our children on entering school? According to the records of the registration areas of all the nations engaged in this war, there was, previous to the war, an annual mortality of more than 7,600,000 from preventable diseases, and no doubt quite as many who have survived the contest have been more or less handicapped as a consequence of their struggle for life. It must be apparent, moreover, that the percentage found in the registration areas is less than in the areas where there is no registration.

What are we doing to control these invisible foes?

Some effort has been made to safeguard the health of the people since prehistoric times, more particularly among the Egyptians. However, the Levitical Laws, as codified by Moses, constitute the first organized effort to apply the principles of hygiene. District health officers were appointed in Rome in 495 B. C. The Cloaca Maxima constructed in Rome centuries before Christ, and also their aqueducts, give evidence of their having recognized the necessity for sewage disposal and for the securing of their water supply from uncontaminated sources. However, it was not until 1847

*Reprints of this address may be secured by addressing the office of the JOURNAL.

A. D. that the first health officer was appointed in England. Think of this interregnum of over two thousand years.

This apparent suspension of public health activities was in a large measure due to superstition and doctrinal delusion of the Israelites, who regarded plagues and pestilence as visitations of divine wrath and this superstition has unfortunately been handed down through the centuries of the Christian era. It was this that Ruskin sarcastically referred to when he said, "Any regulations which tend to improve the health of the masses are viewed by them as an unwarranted interference with their vested rights in inevitable disease and death."

Attend almost any church burial service today, and you will hear the officiating parson read from the service: "The Lord giveth and the Lord taketh away, Blessed be the name of the Lord." In the light of modern knowledge, can you conceive of anything more libelous on the Almighty? If the church is determined to retain this form, why not change it sufficiently to make it consistent, and have it read, "The Lord giveth and the Municipality taketh away, Cursed be the name of the Municipality."

As an illustration of the inconsistency of this attitude, the mortality from typhoid fever on this continent has been reduced 75 per cent during the past ten years, and from tuberculosis it has been reduced practically 50 per cent within the past twenty-five years. This means that tens of thousands fewer are dying from these diseases alone every year than would be dying if the death-rate of twenty-five years ago obtained to-day, in which case, according to the burial service, the Almighty would be to blame for all these deaths.

It is important to note that in the very significant reduction of the general typhoid death-rate in thirty-five American cities in the past ten years, from 27.2 per hundred thousand to 6.7 per hundred thousand, the death-rate varied in these thirty-five cities from 56.4 to 1.7, this latter figure being for Chicago, which is the lowest of any city on the continent. This is a wonderful showing. Over 20,000 fewer people died from typhoid last year than would have died if the death-rate of 1907 had obtained. Obviously then, we have practically bottled up in our filters, Admiral Typhosus, with his entire navy, and should one of them escape, he is promptly gassed with chlorine.

While this is only one disease, yet it demonstrates the possibilities of preventive medicine, and what can be done by an intelligent application of the knowledge we now possess. It places the blame where it belongs.

I trust that the time is not far distant when if an epidemic of typhoid fever breaks out in any municipality, that can be traced either to the water supply or the milk supply, or any other source that the municipality is responsible for, that those affected will have legal claims for damages, and that our Federal governments will indict such municipalities for manslaughter.

In view of the unqualified success of anti-typhoid vaccine, it would seem that in any municipality where the water and milk are not made at all times safe, anti-typhoid vaccination should be imperative.

However, even if all preventable diseases were controlled (and their control will require much more intensive work than has been done in the past) we would then be doing but a fraction of the work of public health administration as we now see it, inasmuch as it means the development of a fitter race, the conservation of man power. Therefore departments of public health are essentially nation building.

It was a vision of this three quarters of a century ago that prompted Disraeli in the British House of Commons to say that "public health is the foundation on which rests the happiness of the people and the strength of the nation," and that "the first duty of a statesman is the care of the public health."

Oliver Wendell Holmes once said that to produce a perfect gentleman you require to begin with his great-grandparents. To produce a fitter race, we must begin with the germ plasm from which they are developed. Eugenists tell us that the moment conception takes place the door of parental gifts is closed. In other words, the moment conception takes place, the possibilities of eugenics ends. Obviously then, if we are going to have, and if we are going to develop a fit race, we must have a complete chain of activities. There must not be a missing link. Where eugenics ends, eugenics must begin. Or, as Galton expressed it, "Where nature ends, nurture begins," and it is only by combining both efficiently that we can hope to develop the fittest race.

While I have a profound respect for the school of eugenics, yet we must remember that we have no say as regards the kind of man timber out of which our ancestors were made, but we have a say, and are responsible for the man timber out of which our descendants will be fashioned.

Pre-Natal Care.

Every child has a right to be well born, born of parents who are physically and mentally sound. That is to say, they should develop from a germ plasm which is free from any taint that might militate against them. If our organized campaign against the still unduly high infant death-rate is to be efficient, obviously it must begin just after conception has taken place. The necessity for this is apparent when we realize that more than one third of the infants that die in the first year, die during the first month, and from 60 to 70 per cent of these die within the first week. Consequently, if these lives are to be saved, it must be by pre-natal care. Here the grim monster reaps his harvest, ofttimes by a dual action, directed against both the mother and child. If we would save the baby, we must save and protect the baby's best friend,—its mother. There is no other resort that the infant has or can appeal to comparable to the maternal instinct. With no language but a cry, the infant when in distress promptly appeals in this way, which appeal, none but the mother can properly interpret.

It is a well-recognized fact that the infant nursed at the mother's breast has ten chances to one for life and efficient development that the artificially fed child has. Consequently our pre-natal care must embrace not only the efficient piloting of the mother through her pregnancy and confinement, but also we must see that as far as can be we make it possible for her to nurse her baby.

There is probably no greater reflection on our intelligence as a profession than the fact that while the death-rate from typhoid fever and tuberculosis on this continent has been reduced by more than half in the past twenty-five years, and that there has also been a marked decrease in all other preventable diseases, yet there has been no appreciable decrease during the same time in the deaths from diseases due to pregnancy and from conditions accompanying labor. This has been shown to be largely the result of ignorance on the part of patients and lack of efficient training on the part of the physicians, and their neglect to turn to practical account the knowledge which they possess.

Williams has pointed out the fact that

in the majority of medical colleges in the United States, instruction in obstetrics is sadly neglected and that consequently the young graduates turned out are incapable of handling any but normal cases, and they only too often failed to intelligently apply the principles of antisepsis and asepsis in this practice.

It is almost inconceivable in the light of modern knowledge that, according to a report recently issued by the Children's Bureau at Washington, pregnancy and childbirth on this continent cause more deaths among women between fifteen and forty-four years of age than any other disease excepting tuberculosis. Basing our calculations on the records of the registration areas of the United States and Canada, there is approximately an annual mortality of 16,800 women due to childbirth, and 7,500 of these deaths are due to so-called child bed fever. This is undoubtedly a very conservative estimate. These figures cannot be properly appreciated unless we present them in a comparative way. Let us compare them with the death-rates from other preventable diseases. For instance in 1913, the death-rate from diseases due to pregnancy and confinement was 15.8 per hundred thousand population, which of course includes all ages and both sexes, and the death-rate from puerperal septicemia or child bed fever was 7.2. In the same year the typhoid death-rate was 17.9 per hundred thousand and the death-rate from diphtheria and croup 18.8. In the light of modern knowledge of the principles of antiseptic surgery and its application to obstetrical practice, it is nothing short of criminal that such a high death-rate should continue.

With efficient pre-natal care, the mother can be guided not only in regard to the necessary precautions to be observed regarding proper nutrition, clothing, exercise, but also she can have explained to her the danger signals as regards complications: she can be advised to consult a physician early, to submit samples of urine frequently for testing with reference to the activities of the kidneys; the advisability of early examination, and examination again about the seventh month, to determine whether or not any abnormal conditions exist that might militate against her at full time of gestation.

The fact that the infant depends entirely on the mother's blood for nutrition, makes it all the more imperative that the blood be kept in the best possible condition, which can only be accomplished by the efficient safe-guarding of the mother's health, in piloting her through her pregnancy. The extreme importance of her nursing her infant should be emphasized. Where efficient pre-natal care has been established, there has been a marked increase in the number of mothers nursing their babies, and the infant mortality during the first month has been reduced more than 50 per cent.

Obviously then, pre-natal care will not only secure a better and more vigorous race of infants, to start life with, but will also tend to improve obstetrical service and thereby save the lives of many mothers that are unnecessarily sacrificed at present.

Furthermore, pre-natal care affords a starting point for the nurse to educate the mother in the intelligent care and feeding of her baby when it arrives. The mothers are instructed in their homes in regard to the care of the infants after their arrival. They are required to bring their infants, as soon as they are old enough, to the well baby clinics, which are established in the various districts of our cities, where the babies are examined by physicians specializing in the care and feeding of infants, assisted by the public health nurses. They are weighed and measured, in order to determine whether

or not their development is normal. Any physical defects are recognized and instructions are given regarding the correction of them.

The next link in this chain of public health activities is the care and supervision of the child in the pre-school age. Probably the most valuable result of medical inspection of schools has been the revelation of the fact that a large percentage of the children on entering the public schools are suffering from physical defects. This has been demonstrated in all cities where the medical service in the schools requires the complete physical examination of every child on entering school. Experience has taught that a large number of children, healthy in all respects at birth, become, within five years, physically defective, and consequently municipalities, through their boards of education and departments of health, are required, at no small cost, to restore these children as far as possible to their original state.

Sir George Newman, in a recent report, has drawn attention to the efforts on the part of educationalists towards a higher standard of physical development, and in this connection he emphasizes the great importance of the early supervision of the homes. By this means, many conditions that are irreparable by the time the child reaches school, could be prevented. While much has been done as regards pre-natal care and the care of the new-born infant and in medical inspection of school children, little or no organized effort has been made as regards the supervision of the child in this intervening age. Hence, a most important field of social and biological study has been for the most part overlooked.

Pre-School Age.

When one considers the plastic character of life at ages say between one and six years, one readily realizes the importance of efficient supervision during this period. Fortunately this has been recognized by some administrators of public health, who by organized effort have stepped into the breach and forged the missing link and welded it into the chain.

The pre-natal care of the child can be satisfactorily linked up with the care of the infant, through the organization of well baby clinics, also in the various day nurseries and other institutions where children are kept during the pre-school age.

The fact that, on a complete examination, approximately 50 per cent of all children on entering school show signs of some physical defects (exclusive of dental defects) of sufficient importance to require medical care, points to the absolute necessity of careful supervision during this period of the child's development.

Before the child leaves school he again undergoes a complete physical examination, which serves a double purpose; first, it serves as a guide to the boy or girl in regard to any physical weaknesses that they may have, in order that they might endeavor by all possible means to reinforce these weaknesses, and secondly, it helps them to determine the vocation in life for which they are best suited.

Industrial Hygiene.

The next link in the activities is that of a well-organized division of industrial hygiene. This has been another lamentably neglected branch of preventive medicine. Industrial diseases are for the most part preventable. Industrial hygiene is a part and parcel of community hygiene. Therefore, it must obviously come under the régime of departments of public health and local boards of health in all municipalities. We have safe-guarded the child from conception until it enters the industrial world. Why should we stop then? We must follow on and see

that the industries in which he may engage are so conducted as not to be prejudicial to his health.

When we refer to industrial hygiene and industrial diseases, we embrace, first, the results of the general sanitary conditions of factories, workshops, workhouses, warehouses,—badly lighted, overheated, improperly ventilated, ofttimes with dust-laden atmosphere. The ill effects of fatigue are also taken into consideration. All of these tend to lower the vitality and thereby reduce the resisting powers of the body, rendering the individual in many respects more susceptible to diseases to which he may be daily exposed, consequent upon the close contact with probably one suffering from a mild attack of tuberculosis or one convalescing from some communicable disease, who is still a chronic carrier. Furthermore, such environments, if tolerated, only hasten the fatal issue to those unfortunates who are already the victims of the aforesaid disease, and who, through ignorance of their condition, or the danger of their environment, are by dint of circumstances compelled to face the inevitable.

Then, of course, we have added to this the morbid conditions consequent upon the occupation or trade, giving rise to specific diseases, such as lead poisoning, phosphorous poisoning, arsenical poisoning, mercurial poisoning, brass poisoning, and poisoning from the fumes of mercurial acids and wood alcohol, workers in compressed air, and so forth.

Departments of health will find that employers of labor, once educated along these lines, as to the importance of them, will readily coöperate. Employers of labor in Toronto have spent tens of thousands of dollars in installing the necessary equipment for the control of trade dusts, and for the better ventilation of their industries, knowing as they do, that improper ventilation, with the employees exposed to inhaling trade dust, can easily cut down the percentage of efficiency of all their employees, to say nothing of the loss of time through sickness. No employer of labor can afford to pay ten out of every one hundred of his employees for doing nothing, and that is what only 90 per cent efficiency really means. Sir Thomas Olliver says that industrial diseases cost this continent more than $779,000,000 annually.

Then we have the degenerative diseases of middle life, premature diseases of the heart and arteries, kidneys and liver, and the thousands of lives that are sacrificed annually to cancer, which, if recognized early, by preference in the pre-cancer stage, or even early in the cancerous stage, and promptly operated on, a large percentage of these lives could be saved.

Then we have the neglect of the mental condition of our children and of our adults. Mental hygiene is also essentially a part of the general community hygiene, and when we use the term "hygiene," we should use it in the broadest sense, as being synonymous with health. The maintaining of the mind in a healthy condition is surely as important as the maintaining of the body in a healthy condition, and is as deserving of guidance. Obviously then, linked up with our public health service should be a division of psychiatry or mental hygiene.

Education.

And last, and yet the most important of all activities of a department of health, is education, inasmuch as probably 99 per cent of the permanent efficiency of public health administration depends on the efficiency of our educational campaigns.

We must in the first place educate the future governors, the future legislators of our community, the future parents of our country, the medical profession, the

nursing profession, the clergy and the legal profession. For the generation to come there is only one efficient way and that is to begin in our schools. Make instructions in hygiene and public health an organized part of the curriculum of every public school, high school and college.

While we can accomplish much by our public health bulletin, newspaper talks, public addresses, health leaflets, etc., yet we must bear in mind that there are thousands in all of our cities that cannot read. There are thousands of those who can read that do not read, and there are thousands of those who do read, that do not think. We are confronted by the lamentable fact that the knowledge essential for our people to be in possession of, as regards disease-producing germs and the ways and means by which they gain access to the body, has been kept for the most part in past years within the precincts of universities and laboratories. This, to be of practical value, must be democratized. It must be translated into a language that will be understood by the man on the street and by the housewife in the humblest home. This can be most efficiently done through the medium of the public health nurse, who meets the parents with their children in the well baby clinics, in the hospital clinics, in the tuberculosis clinics and in the public and parochial schools, and visits thousands of homes in our cities every day. In her conversation with the mothers in the homes, she will be listened to and can make these facts so plain "that the wayfaring man or woman, though a fool, need not err therein."

We are sometimes afraid of repeating things too frequently, but any one who has had any experience along educational lines, must have been fully impressed with the importance of repeating and repeating a number of times, over and over again. This has been the experience all down through the ages. Occasionally we have had outstanding illustrations of this. When Cobden was endeavoring to have the corn laws repealed in Great Britain, after repeated efforts, in a spirit of indignation, he said that he had come to the conclusion that the only way to get anything through the heads of the British people was to repeat it over and over again, in just a little different language. A few years ago when the subject of education was under consideration at the New York Academy of Medicine, Professor Sir William Osler said that in his judgment the secret of education was reiteration, reiteration, reiteration, to which one of his colleagues added, "Without irritation." As I have quoted Cobden and Osler before, you see I am consistent in recommending reiteration. It is certainly an enviable accomplishment to be able to reiterate sufficiently often to leave a permanent impression on the brains of our fellow-citizens, without causing irritation.

While the foregoing represent the activities of a well-organized department of health, yet there are probably not a half dozen cities so organized on this continent. We shall never obtain the results that our people are entitled to, and that the principles of true democracy dictate, until this kind of organization is in operation in every municipality.

Every citizen on this continent is entitled to this protection and guidance and he is not having justice without it.

It must be apparent then, if this is going to be accomplished, if our activities are to reach into every state and municipality on the continent, that all powers and authority for governing this work must be centralized. The greatest determining factor in our winning out in the recent war was, by general consent, the appointment of a Generalissimo. What every nation requires in its public

health administration, in its organized battle against the invisible foes of the race, is a Foch. We require the centralization of authority. Whether that be a public health service, a local government board, a department of health, a ministry of health or a secretary of health, it matters little, but all authority should be centralized under one department, if we are going to have efficient results. After all these years of warfare against these invisible foes, we have little to boast of beyond a pitched battle. Every human body may be a battle field against these invisible foes. Consequently, every individual must be a trained fighter, and though we march apart, we must fight together under one command.

In the foregoing I have endeavored to point out the principal rocks and shoals upon which administrators of public health are required to place the beacon lights to guard our people from mental, moral and physical shipwreck.



TAKING THE BOARD OF HEALTH TO THE PEOPLE.

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Read before the Public Health Administration Section, American Public Health Association, at Chicago, Ill., December 9, 1918.

THAT the State Board of Health is but a name to many citizens is a well known fact. Boards of health have many ways of reaching the people, prominent among which are the various sub-departments such as Bureau of Engineering, Statistics, Child Welfare, Epidemiology and Laboratories and the district or county health officers, etc. Each of these endeavors to be as useful as possible to all sections of the state. In many states there are meetings to which health officers are called in order that the problems of each may be discussed and a more general "get together" movement established and any state that has not inaugurated such conferences has missed a great aid in securing the coöperation of these officials.

In spite of all that may be sent out from the office of the health department there is a woful lack of understanding on the part not only of the citizens but of the local health officers and physicians as well, of what the State Health Department is willing and prepared to do for them.

It is not the purpose of this paper to discuss all the ways of carrying the board of health to the people but to discuss a few ways connected with the laboratory side of the question.

Florida is, as most of you know, a state of peculiar shape and it may surprise some of you to be told that it is the second largest state east of the Mississippi.

The main office and the central laboratory of the department are located at Jacksonville, the largest city, and this is connected by rail with all parts of the state. In spite of this many sections are a long distance from headquarters. The state is divided into eight districts each having a full time health officer.

To give some idea of distance in Florida, which is not classed as one of the large states, let me tell you that from Key West to Pensacola by rail it is 891 miles or to divide it in another way, Key West is 522 miles down the east coast from Jacksonville and Pensacola is 369 miles west.

There are no railways connecting the east and west coasts excepting in the northern third of the state, thus you will

readily see that a single laboratory can not give as prompt service as is desirable. Branch laboratories have therefore been established at Tampa on the west coast, 212 miles from Jacksonville; at Pensacola in West Florida and at Miami, 366 miles down the east coast.

In spite of the laboratories so located that they are accessible to all parts of the state it was felt that many of the citizens did not realize that they were their laboratories and that the state desired to extend the work of the board of health to all.

Most states are prepared to assist whenever there is an outbreak of disease in any locality and many states have undertaken intensive hookworm and malaria campaigns in localities where these diseases were prevalent. However, our first attempt to take the laboratory to the people was not under these conditions.

Dr. W. H. Cox, State Health Officer, and the writer had been evolving a plan for extension work when one day a letter came from a social service worker in one of the east coast counties that she was going to visit the town of Cocoa, 173 miles south of Jacksonville, and asked for some containers in which to submit specimen of feces to be examined for hookworm infection. This seemed a favorable opportunity for our plan and we proposed instead of sending the containers to be returned to Jacksonville that the containers be sent to be returned to some central point and that they be examined there. The plan appealed to Miss Malin, the worker mentioned above, and she organized the women thus securing coöperation. Examinations were made at a schoolhouse and although the people thought that there was no hookworm infection in their locality we found from 118 stools 15 showing hookworm ova and three with ova of other intestinal parasites. The examinations extended over two and one half days, and the last morning there was a meeting at which seventy citizens were present. The results were made known and there was a general discussion of hookworm infection and soil pollution and of the work of the board of health and the desire to make it of value to the citizens in all parts of the state. It was very gratifying to be able to report on my return that arrangements had been made before I left Cocoa to have every case treated.

The personal interest of those who were treated, and their families, was gratifying and its outcome, which is of great importance as showing an appreciation of the advantages offered, has been the increased use of the laboratory, for from July 24 to October 1 there were more than four times as many specimens from Cocoa as from January 1 to July 22 and also a notable increase from the surrounding localities.

It is the intention of the board of health to extend the work not only along this but many other lines as well. It is not only that specimens are examined but the examination is made on the spot, and by explanation cause and effect are brought to the attention not only of the adults but the children, and when the children get thoroughly interested they are a potent factor in arousing the interest of their parents.

We hope to be able next year to report results from many localities along this and other lines, including malarial examinations and the supervision of milk supplies.

When all portions of the State can be brought to realize that the State Board of Health and its several branches has a direct interest in their particular locality especially if it is hundreds of miles from headquarters then we may expect and can also secure the coöperation of the people from all over the State.

THE SUPPLY OF PHARMACEUTICALS AND MEDICINES IN WAR TIMES; ITS IMPORTANCE AND DANGERS.

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Read before Food and Drugs Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

A FEW months after the outbreak of the World War, the visible supplies of such chemicals as phenol and potassium permanganate and of such drugs as belladonna and dandelion, began to shrink, and prices began to soar correspondingly.

The attitude of the pharmaceutical and chemical manufacturers was somewhat indifferent at this time, except as to present needs. Speculative tendencies were manifested but no attempt was made to provide means for supplying future demands, should the condition of shortage continue.

When, however, the advent of trench warfare in the fall and winter of 1914, and the consequent small gains by either side brought a realization of the probability of the war lasting for several years, a marked change occurred.

For the first time in our industrial history, there was brought forcibly home to American manufacturers the extent of their dependence upon European sources of supply for many chemicals and drugs which could be produced here if necessary.

There was an immediate and intense development of activity along the lines of providing for both present and future needs of substances which had hitherto played but a small part in American manufacturing. It is neither necessary nor advisable to give more than a synoptical survey of the situation and point out the more important features.

Under the general subject heading of this article may be included:—

1. Crude drugs.
2. Chemicals.
3. Biological preparations.
4. Pharmaceuticals.

Crude Drugs: In the matter of crude drugs there was a serious shortage during the first several years, owing to the fact that many of the practical problems of drug cultivation had not hitherto been worked out. Notable successes were recorded in the matter of cultivating such valuable and necessary drugs as belladonna and digitalis, and the quality of American grown supplies of these and similar drugs has never been equalled by drugs previously imported from Europe.

In the case of a number of drugs the cultivation was not possible. Some of these, as opium, asafetida, etc., have remained scarce and high in price. With others, such as scammony and styrax, equivalent drugs were made use of, as of Mexican scammony for the former and American styrax for the latter. While neither of these substitute drugs is absolutely identical with the one replaced, the therapeutic properties are close enough to satisfy the majority of their users.

Chemicals: One of the first problems which was successfully solved in the matter of chemicals, was that of the phenol supply which was taken care of within a few months. As an example of the magnitude of this one factor it may be mentioned that prior to the outbreak of the war no synthetic phenol was produced in America. In 1917 there were fifteen plants established with a combined output of over sixty million pounds annually. Most of this, of course, was used in the manufacture of trinitrophenol, an explosive.

Much of the American chemical development, of course, has been along lines directly connected with the manufacture

of explosives and not of chemicals used for medicinal purposes, but many of these have also been taken care of as side issues, and the great "after the war" problem will be to find an outlet for the output of many plants which have been looking after explosives first and medicinal chemicals last. Much of this energy will be devoted to the dye industry which is developing rapidly.

One of the developments which is still in progress is that of American potash. Many potassium salts are used in medicine, although most of the output is needed for the fertilizer industry. The American sources of potash are kelp-ash, by-products in cement mills and pig iron blast furnaces and in some instances rocks and clays. Whether these sources can survive German competition after the war remains to be seen, as in that country are found natural deposits of soluble potassium salts in a comparatively pure state.

One of the most interesting phases of the medicinal chemical situation is the success which has attended the manufacture in America of articles formerly protected by German patent. These patents were taken over as contraband of war and American manufacturers were permitted to use them under license. The products were sold under names selected by the Federal Trade Commission. Thus salvarsan became arsphenamine; neosalvarsan became neoarsphenamine; veronal became barbital; novocaine became procaine and atophan became phenyl-cinchoninic acid. In the case of arsphenamine it is stated by numerous hospital authorities that the American made product is superior in every way to the former salvarsan.

One of the interesting statements that has been made in connection with many German patents, which are now being made use of in America, is that in some instances the patent is unworkable because essential steps or necessary information have been left out of the published descriptions which were evidently intended to mislead. The success of this form of Hun cunning has been on a par with the success of attempts to render the interned vessels unserviceable.

Biological Preparation: In the field of serums and vaccines, so important in modern preventive and curative medicine, the development was marvelous. Tetanus and typhoid, which were so prevalent at the beginning of the war, were quickly stamped out by routine methods of inoculation and many other diseases have been successfully combated by the use of biological preparations. The immensity of the development of this line of work may be appreciated when it is learned that some of the vaccines and serums, which had in normal times been produced to the extent of a few thousands of packages in a year, in the first year of the war were ordered in quantities of millions of packages.

Great and permanent progress has been made along these lines and the development will doubtless continue with the object in view of stamping out many diseases at home with the same degree of effectiveness that has been noted in the army, where the death-rate of some diseases has been held down to a figure far below that observed under the most favorable conditions of civil life.

Pharmaceuticals: In the case of pharmaceutical preparations in general, there has not been so much of a development as there has been an attempt to maintain the *status quo ante*.

It seemed probable at one time that extreme conservation measures would be needed in such substances as sugar, alcohol and glycerin, but the point was never reached where it became necessary (as was done in Great Britain) to offi-

cially change the standards of articles recognized in the United States Pharmacopoeia and National Formulary.

Some independent attempts were doubtless made to effect savings in expensive ingredients in articles not subject to official standardization, and food and drug officials were compelled to keep a sharp watch to prevent adulteration under the name of conservation.

There was a largely increased use of antiseptic preparations and ampuls of iodin solution were prepared by the million for the soldiers' first aid packets and thousands of gallons of the neutral form of sodium hypochlorite solution, known as Carel-Dakin solution, have been used in hospital practice.

The war has certainly brought American manufacturers to a complete realization of their former heedless methods, and if the newly developed American chemical industry is properly protected, as it should be, we will be independent of European sources of supply to an extent that would have seemed impossible to the most optimistic prophet of pre-war times. In the matter of biologicals, American manufacturers have achieved what is believed to be a permanent supremacy. In the matter of crude drugs great progress has been made, but only along limited lines, and the trade will welcome the resumption of traffic with portions of the world which have been cut off for several years.

The danger in the near future is that the progress which has been made along the lines indicated will be almost entirely wiped out by a reversion to the former plan of buying in the cheapest market. With the present high prices American development and progress will continue, but it must be clearly understood that some degree of protection must be afforded these industries for a time at least, in order that they may not be forced to enter into competition with what will soon be a mad race for markets at any price.



STERILIZATION OF BOTTLES FOR PASTEURIZED MILK.

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THE Baltimore Milk Pasteurization Ordinance, which went into effect about a year ago, in addition to requiring the proper pasteurization of practically all milk sold in the city, also requires that every bottle or other container into which milk is placed shall be sterilized. The Bureau of Food and Dairy Inspection has met with difficulty in enforcing this latter provision of the law. The difficulty has not been caused by lack of equipment (because every dairy has been compelled to install a satisfactory bottle sterilizer) and not entirely by wilful neglect on the part of the dealers; but in large measure it has been due to ignorance and lack of understanding on the part of dealers. Inspectors found in a large number of cases that the operator of the sterilizer considered that a bottle had been sterilized when a cloud of steam was injected into it, no matter what the temperature of the steam and no matter what the temperature to which the bottle was heated. The operator did not understand that it was the heat which killed bacteria in the bottle. Even in plants of large dairies, where hydraulic washing machines had been installed at considerable expense, it was frequently found that

operators failed to open steam valves, and bottles came out of the machines cold. Add to such ignorance and negligence on the part of the operators the desire of the dealer to keep his coal bill as low as possible and the difficult task of enforcing a bottle sterilization law in a city with a large number of milk plants is very obvious. We have come to the conclusion in Baltimore that a bacteriological control of bottle sterilization by the Health Department ranks in importance with bacteriological control of milk.

following are the results of the examinations of bottles collected from November 8th to the 27th from twenty-three of the milk plants of Baltimore:

In general it has been observed that those dairies which have a low bacterial content in their milk properly sterilize their bottles. This is not always the case, as there are other factors, such as proper pasteurization and proper refrigeration, which, of course, have more influence upon the actual number of bacteria than the condition of the bottle. However, as

Lab. No. of Dairy	Bacteria Per Bottle		Lab. No. of Dairy	Bacteria Per Bottle	
	1st Bottle	2nd Bottle		1st Bottle	2nd Bottle
1	120,000	12,000	13	sterile	5,000
2	600,000	5,300,000	14	20,000	2,000
3	sterile*	sterile	15	sterile	60,000
4	sterile	25,000,000	16	60,000	7,200,000
5	5,000	3,300	17	20,000	2,000
6	20,000	18,000	18	sterile	7,000
7	80,000	6,000	19	250,000	300,000
8	40,000,000	1,000	20	Spreader	2,000
9	300,000,000	23,000,000	21	150,000	2,000
10	50,000	6,000	22	60,000	7,000
11	sterile	sterile	23	2,000	90,000
12	sterile	4,000,000			

* Sterile means less than 100 bacteria per bottle.

After examining a large number of supposedly sterilized bottles from most of the pasteurization plants and finding that these bottles contained from 300 to 160,000,000 bacteria per bottle, the examination of bottles from all plants was adopted as routine work. An inspector collects the bottles from the milk plants, caps them (whenever possible by machine) and delivers them to the bacteriologist who rinses them with one hundred cubic centimeters of sterile water and makes a bacteriological count of this water. The the bottles come from thousands of homes, the possibility of the introduction of pathogenic organisms by unsterilized bottles seems to us as great a danger as the possibility of the introduction of such organisms before milk is pasteurized.

We are now comparing the average bacterial count of a large number of samples from the empty bottles with the Levy rating of the milk from the various pasteurizing plants and shall make a later report upon this phase of the subject.

Don't Forget—New Orleans—October 6–9.

RECONSTRUCTION AND THE CHILD.

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Read before Public Health Administration Section, American Public Health Association at Chicago, Ill., December 11, 1918.

THE sudden ending of the war and the changes in our national life which are coming so rapidly as a result of peace, have made it essential that we turn our attention to the vital problems of reconstruction as they affect the welfare of our country. Foremost among these problems stands that of the child.

The serious effect of this war upon children has been frankly apparent in the belligerent countries of Europe. We do not seem to appreciate fully the effect of its destructive tendencies in regard to child life in the United States which, while perhaps more subtle in form, have been none the less widespread and serious. Our own participation in the war was for so short a time that we may perhaps be forgiven for having devoted almost all our energies to the proper equipment and maintenance of our armies. It was essential that Europe should have taken this attitude during the first year of the war, and it was not until well into the second year that our Allies began to pay attention to the devastation that was being wrought in their child population. Since that time they have made efforts at child conservation far in advance of any previous time.

In the United States our sympathies have been greatly aroused by the sufferings of the children of France, Belgium and Italy. We have watched with keen interest the work that has been done in those countries and in England to care for the rising generation. We have cooperated with them to the fullest extent of our ability and have sent them not only our workers but also our sympathy and our money. Anything less would have been inconceivable on our part and it is right and proper that we should continue to help the children of Europe. Yet, in our anxiety to meet what seemed an emergent situation abroad, we have, I think, failed to realize fully that much the same influences were at work in our own country, undermining the health of our children who constitute one-fifth of our population.

It is a matter of historical fact, as well as present knowledge, that during any war no part of the civilian population suffers so severely as do the children and this suffering and reaction seem to be in inverse proportion to their age. In this country the increase in the rate of wages has not kept pace with the increase in the price of food. In addition to the regular conservation of food which we all have been asked to practice, there has been in the families of a large part of our population a forced deprivation of many types of nourishing food. This has left its mark in the undernourished bodies of many of our children. General reports throughout the country have shown that undernourishment in children has increased rapidly during the last four years. Up to 1914 it had remained practically stationary for some time. When we began to ship food abroad and prices began to increase in this country, it was the children and not the adult members of our population who were first to feel the effects. In 1914 in New York City 5 per cent of the children of school age were undernourished. In 1917 21 per cent showed such definite signs of malnutrition as to demand immediate attention. Wherever the subject has been given se-

rious thought, whether in cities or rural communities, much the same conditions have been found to exist. During the past year there has been an attempt to deal with this situation by expanding the school lunch system and by spreading broadcast information essential to a better distribution of the budget as far as foods are concerned, but these efforts have been sporadic and isolated.

We are only beginning to get reports regarding the results of women in industry as far as it affects infant life. Even without exact statistics, however, we must consider that many women have gone into industry before marriage, some have worked during the period of pregnancy and some while their children were still infants. This enormous change in the habits and status of women cannot fail to have an effect upon child life. Left unregulated, it may indeed be a menace to our future welfare. It is possible, however, under proper regulation and control, for woman to take her place in industry with entire safety. At the present time, however, we are in a transitional stage and the employment of so many women is undoubtedly one of the reasons why, during the past year, we have had an increase in our infant death-rate from congenital diseases. It is possible also that the same tendency, implying as it does a certain degree of neglect, may be responsible to an appreciable extent for the high infant death-rate from respiratory diseases. The increased cost of milk has had a definitely bad effect on the health of the child of pre-school age. We all acknowledge that milk is an essential food for the growing child and that nothing else can take its place, yet it is rapidly becoming an almost unobtainable luxury for the majority of our children past infancy. It is not enough to say that economic conditions cause this increase in price. Children must have milk and unless a satisfactory solution of this problem can be reached soon, it is probable that we must seriously consider municipal control of the production and distribution of milk.

Now that the vast problems of reconstruction are facing us, it would seem to be time to develop a broad program for conservation of child life in this country. Something over one hundred years ago, it was determined that if this republic was to endure, its people must be educated, and compulsory education became part of the law of the land. So thorough has been the development of the public school system that it is estimated that at the present time in the United States only 7 per cent of the people are illiterate. No such program for the conservation of health has ever been promulgated, but when we face the facts of our excessive infant mortality, the high death-rate of children under five years of age, the knowledge that 75 per cent of the children of school age have physical defects which might be prevented or easily remedied, and our latest information which shows that rejections for physical disability vary from 40 per cent in the draft to from 70 to 78 per cent in the navy and army respectively, we may reasonably demand that we have a program of public health which is as widespread and universal as our program of public education. Undernourishment is just as great a menace to the future of the country as is illiteracy. Dr. Hamill has stated that the question as to who won this war will be answered twenty or thirty years from today and that, naturally, it will be the country that so maintains the nutrition of its people as to yield the highest degree of efficiency and which most nearly maintains its rate of increase.

In a certain sense the future of a country depends primarily upon the health of its citizens. This is true with particular emphasis in regard to children. The

vitality and virility of the people of a nation stand at the foundation of national progress and the health and welfare of the children are the factors which always determine the vigor and stability of a race. We can justify this war only if out of it comes a better world and the determination of the type of world we will have rests largely upon the mental, moral and physical health of the children of this and the next succeeding generations.

The problem of the health and welfare of children differs in a fundamental aspect from a similar problem applied to adults. In the latter, we may reasonably expect coöperation on the part of the people with whom we are dealing. Children, however are the inarticulate fifth of our population. They are unable to express for themselves their desires or their needs. Whatever may be done for them must be carried out by others than themselves. They are the victims of their own inability to voice their demands. Our responsibility toward them is all the greater because of their helplessness and we are committed all the more deeply to helping them.

It has been traditional, in this country at least, that human life is our cheapest possession. It has always been more difficult for us to part with our property than with our lives. The small ratio of our national and local budgets which is apportioned to the health authorities has been a disgrace. We have always been willing to spend huge amounts of money to conserve property, but it has always been difficult for us to obtain even a small amount of money to conserve life. One may well wonder whether, if our first contribution to this war had had to be a forcible draft on our wealth, it would have been acceded to as cheerfully and as wholeheartedly as was the forcible draft of our young men. The war has taught us to value human life. It has never been so precious. Practically every country in Europe is now spending more money for health conservation than ever before. Not only child welfare work but also the whole problem of the health of adults is receiving unusual attention and programs are in the making for a more comprehensive system of health work in the future.

The countries of Europe are dealing with questions of health as a national problem. Their work in child welfare, therefore, is direct. In England grants have been made so that there is at least one public health visitor or nurse for each five hundred children in the country. In France they are already starting a nation-wide system of child conservation, while the child welfare work in Belgium has not only been attended to as one of the most insistent problems in maintaining the life of that country but the program for the future has already been laid down.

Europe has lost its child population through decrease in the birth-rate and in many of the countries through an increase in the death-rate. The latter has been met in part by the extension of child welfare work. In this country we have not yet had to face the tremendous loss of our population through the falling birth-rate which has been such a serious menace in Europe. Sir Bernard Mallett, the Registrar-General of England, estimates that this reduction in the birth-rate has amounted to the loss of 12,500,000 potential lives in Europe since the war began. Possibly because we have not had this problem to contend with, we have not yet awakened to our continued negligence with regard to the excessive waste of life at its beginning. The official figures to date seem to show that the total number of men of our armies who were killed in action or who died from wounds or disease during the nineteen months we participated in the war was about 53,000. During the same period of time 475,000

children under five years of age died in this country, yet we know that the greater proportion of this number could have been saved. For every soldier who has lost his life abroad, nine children under five years of age have lost their lives here. Loss of life during war may be inevitable but such excessive loss of life during times of peace can only be looked upon as the result of criminal neglect.

It seems almost preposterous to put forth continually the claims of the child for a normal and safe childhood. The only excuse for constantly reiterating the plea for child care is the fact that no adequate program for child welfare work has yet been put into effect in this country.

Just at this time, however, we are beginning a new era. Our haphazard methods of the past will no longer be accepted. The time has come when we must search our national conscience and meet this test. However we may extend our health program for the adult there can be no question but that we must reconstruct our health program for the child. As mere life is not our goal but rather the use we make of it, so our reconstruction program for child welfare does not concern itself alone in concentration upon specialized health functions. There is no other part of life that must be so entirely viewed as an age group as that of childhood. "Child welfare" is an expression which gives a vastly greater conception of our duty toward the child than the mere term "child hygiene." We know from our experience that any health program for children can succeed only when it takes into account every other factor that concerns the life of the child, but, in a larger sense, not only do we wish to conserve the health of the child but also his right to the full joy of life.

The children's year program as outlined by the Federal Children's Bureau has been the first national recognition of the need of a health program for children. It has had valuable results in calling the attention of the country to the needs of the child, but it is only the beginning. The time has come to bury factional differences and to subordinate special lines of work to the greater good of the unified effort. We shall not do our full duty to the child so long as we approach the problem from so many angles. We must stop thinking of specialized activities in regard to the child and think of the child itself. Instead of looking from the activity inward, let us work from the child outward, so that, whatever else may result from our efforts in building the world anew, at least we may be able to say that the rights of the child are safe from now forward.

I quite realize that such a broad problem involves many structural changes in our laws and our organizations which relate to child welfare, but nothing less than this broad adjustment will do justice to our ideals. The program I have in mind would be controlled by standards established by our Federal government through the Department of Labor and the Children's Bureau, the Department of the Interior and the Bureau of Education and the program already announced by the United States Public Health Service in regard to the health of children.

This program should include the proper conservation of the mental, moral and physical claims of the child. To be concrete, there should be in each state a department of child welfare, of equal importance with other state departments. All existing activities at present under government control and which in any way pertain to childhood could be brought together under control of this department. One great exception could be made to this—the Department of Education. Here the problems in themselves are so specialized and technical that they may well be considered as a separate function.

However, the Department of Child Welfare should work in close relation to the Department of Education and the work of the two departments should be closely coördinated. The legislative changes that would be needed to accomplish the proper organization of this Department of Child Welfare may seem difficult, but they are not impossible.

Such a department should have a commissioner and its organization should be divided into several bureaus. The functions of these bureaus must necessarily be interdependent and strongly coöperative. Simply as a tentative outline, the creation of the following bureaus is suggested:

1. *A Bureau of Child Caring Institutions.* This bureau might well control the work connected with supervision of day nurseries and foundling babies boarded out in private homes, widows' pensions, the question of the relation of foundlings and illegitimacy to infant morta ty, institutional as well as home care of children and all of the problems connected with dependency and the neglected child. The Bureau of Child Hygiene would naturally coöperate strongly with the Bureau of Child Caring Institutions in all questions relating to the health of the children under supervision.

2. *A Bureau of Mental Hygiene.* The next bureau should be a "Bureau of Mental Hygiene." This bureau should have charge of all matters pertaining to the vast number of mentally defective children. It would naturally be in close coöperation with the Bureau of Child Caring Institutions and, indeed, the question might well be settled as to whether it would not be better to place all normal dependent children in private homes and use the institutions for the care of mentally defective children. The problem of the relation of mental deficiency to crime should also be met in connection with the Bureau of Delinquency.

3. *A Bureau of Delinquency.* Here the relation of crime to health should be worked out, with a proper program for the prevention of crime in childhood and for many other important lines of work. The Children's Courts might well be a part of this bureau. Already the question of the health of children in relation to crime has received a good deal of consideration. The Bureau of Child Hygiene might well coöperate closely with this bureau in this regard.

4. *A Bureau of Recreation.* Playgrounds, recreational facilities and physical training, all closely allied to the health of the child, might properly be brought under one supervision.

5. *A Bureau of Child Labor.* Child labor laws should not be carried out from the labor point of view but from the point of view of the child, therefore supervision of this work belongs properly to the Department of Child Welfare rather than the Department of Child Labor. Recognition of the importance of the physical condition of the child is implied by the fact that the issuance of employment certificates is now largely a function of health boards.

6. *A Bureau of Child Hygiene.* Under this bureau should be outlined the complete health care of children from the prenatal period to adolescence. Such a bureau would follow closely the organization of present bureaus of child hygiene. Its activities include control of midwives, prenatal care, prevention of infant mortality, health supervision and coöperation with the Bureau of Child Caring Institutions in connection with the boarding of children in private homes, health care of all children in institutions, health supervision of the pre-school age child, medical inspection and examination of school children, including school clinics, and the health problems connected with child labor.

7. *A Bureau of Child Legislation.* Each state should have a children's code which should consist of all essential legislation necessary to protect the child from the prenatal period to adolescence. This legislation should be so coördinated that the Department of Child Welfare might function through its provisions.

The Department of Child Welfare, as above outlined, is, of course, merely suggestive. No attempt has been made to give in detail the various functions that might readily be placed under its bureaus nor should it be understood that the outline given is considered inclusive of all activities that may properly come under its control. Nothing less than the use of all possible methods to conserve the health of children should be regarded as satisfactory. The details of such an organization do not, in any sense, present an insurmountable problem. The transfer of functions at present exercised by certain independent parts of our government could easily be accomplished, if the desire were present. The gain which would result from the elimination of all overlapping, different questions of jurisdiction and conflicting methods would, in itself, more than repay any efforts that might be made to obtain it. Under one unified control, such a department would be a factor of the utmost importance in our national life. It would be, in fact, an almost "ideal state" for children. This is not a mere visionary ideal but a practical possibility. To perfect our methods of child care and place such a department in operation should be part of our national reconstruction program. Nothing less will measure the duty we owe the next generation.

As a result of the experience of England, Sir George Newman, the general health officer of that country, has stated that "no reconstruction of the state can wisely ignore the claims of the child." We shall fail to do our full duty to our children and we shall truly be making them pay the price of this war unless we are able to evolve a program that will, in effect, be a Magna Charta of childhood, and this "declaration of rights" will not only include the right to be healthy, it will include the right to get the fullest value from life in all its aspects.



NOTES ON THE REACTIONS OF BACTERIOLOGIC MEDIA.

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THE determination of the hydrogen ion concentration, to replace that of the titratable acidity, as a measure of the reaction of bacteriologic media has come into favor in many laboratories since the work of Clark and Lubs.[1] Data have begun to accumulate for various media involving, usually, the reaction for optimum growth of some specific organism. Examples from the literature of this year serve to illustrate. Kligler[2] recommends a P_H value of 7.8–8.0 for Endo's medium, 7.0–7.2 for brilliant green agar and 7.4 for the Russell double sugar medium. Dernby and Avery[3] report an optimum concentration of $P_H = 7.8$ for the pneumococcus in a broth medium, with limiting values for growth of 7.0–8.3. Meyer and Stickel,[4] using the typhoid bacillus, find optimum growths on bril-

liant green media with $P_H = 6.4–7.0$, and on their suggested peptic digest media at 7.0–7.2. A committee of the American Public Health Association reporting on "Standard Methods of Examining Disinfectants"[5] recommends a hydrogen ion concentration between $P_H = 6.0$ and $P_H = 7.0$ and states that the best results are obtained at a value $P_H = 6.5$. Such data are extremely valuable in helping to overcome some of the difficulties in the preparation of bacteriologic media, and it is hoped will be rapidly augmented.

The following notes have been gathered from data accumulated during the past year, while preparing media of various sorts.

It has been the custom with many of us to adjust the reaction of a medium before sterilization, trusting that any further change will be insignificant. This is, of course, not true so far as the titratable acidity is concerned and only true under certain conditions in connection with the hydrogen ion concentration. A broth made from meat infusion, containing 2 per cent Witte's peptone and ½ per cent sodium chloride, was neutralized and heated for 15 minutes in an Arnold sterilizer. The titration was made in the usual manner, using phenolphthalein as an indicator and the P_H values determined against Clark and Lub's solutions with phenol red.

	Titration.	P.
Before heating	0.0	8.8
After heating	+0.57	8.2

A second heating in the Arnold gave no further change. A series of flasks containing meat extract (0.35 per cent) peptone (1 per cent) broth with 1 per cent of lactose and 0.1 per cent of dextrose added was heated in the steam autoclave for 10 minutes at 10 pounds pressure. The following five examples are illustrative of the whole series.[6]

Before Heating.		After Heating.	
Titration.	P_H	Titration.	P_H
+0.2	9.0	+0.6	8.8
+0.6	8.6	+1.0	8.4
+1.3	7.4	+2.1	7.4
+1.5	6.8	+1.7	6.8
+1.8	6.5	+2.1	6.5

The point to be made is that slightly acid, neutral and alkaline media change appreciably on sterilization, while distinctly acid media do not.

There is some value in knowing whether any relation, even if indefinite, exists between titratable acidity and hydrogen ion concentration, in order to correlate previously obtained data with those obtained according to our more recent ideas. Records have been kept of the reaction of various media made from the same ingredients at different times. Meat extract (0.35 per cent) and peptone (1 per cent) formed the basis of all, and sterilization was made in a steam autoclave. The media are plain broth, dextrose broth and plain agar. The following represent the results obtained:

Titration.	P_H
+0.75	7.5
+0.8	7.4
+1.0	7.5
+1.15	7.1
+1.25	7.4
+1.40	6.8
+1.45	6.8
+1.50	6.9

There is a general agreement in such a series which is probably within the limits required in most routine work. But if the ingredients are changed, for example by using a different brand of peptone, P_H values corresponding to titratable acidity are entirely different. The following results were obtained from broth made from meat infusion, to which 2 per cent of a different brand of peptone was added and sterilization effected in an Arnold:

Titration.	P_H
−0.5	8.8
−0.2	8.6
+0.57	8.2
+0.87	8.0
+1.08	7.8
+1.34	7.6

Two results in media prepared in the same way as this last series but with a different variety of peptone gave:

Titration.	P_H
+1.4	8.1
+1.3	8.1

The media in these last two series have been tested with pneumococci. The best growth was obtained in broth with a titratable acidity of +1.08 and a P_H value of 7.8. This is exactly the optimum P_H value obtained by Dernby and Avery[3] but their acidity is reported as +0.3 to +0.5. The titratable acidity of my medium was far greater than is ever suggested for pneumococcus growth. Agar with a +1.4 reaction to phenolphthalein and $P_H = 8.1$ I have used as a basis for blood agar and obtained excellent results in growing streptococci as well as pneumococci. These illustrations serve to indicate a distinct difference in composition of the food materials supplied to microörganisms and this may be as important a factor as the hydrogen ion concentration, but the latter is certainly of special interest.

In the determination of the hydrogen ion concentration of media the excellent methods of Clark and Lubs are usually employed. These involve solutions rather too complicated to be used in laboratories whose work is confined to routine determinations, such as a water works or even a small municipal or medical laboratory. An attempt toward simplification has been made by Barnett and Chapman.[7] Briefly, their method consisted of two series of six tubes, one series containing dilute alkali and the other dilute acid, 10 drops of an indicator (phenol red) being distributed between each pair of tubes in varying proportions. By superimposing the acid and alkali tubes a series of colors was obtained corresponding to P_H values ranging from 6.9–8.1. I have repeated their work and obtained almost identical results. If in place of their "dilute acid" a N/200 solution is used the colors are better. For determining the reaction of a medium 1 cc. is diluted with 4 cc. of distilled water. My tests show that this dilution does not change the results by more than $P_H = 0.1$, an accuracy sufficient for routine work. Further, this determination may be made either hot or cold so that agar media may be tested as easily as liquids.

An objection may be raised to Barnett and Chapman's solution on account of the limited range available. This may be remedied by the use of other indicators in the same manner as they suggest for phenol red. Cresol red gives results only slightly different. I have also used brom thymol blue (0.04 per cent in alcohol). This has been suggested for general use in adjusting media.[8] The following table gives the P_H values for both these indicators according to the procedure of Barnett and Chapman.

Drops Indicator Solution.		P_H	
Acid Tubes.	Alkali Tubes.	Phenol Red.	Brom Thymol Blue.
9	1	7.0	6.3
8	2	7.2	6.5
7	3	7.4	6.8
6	4	7.6	7.0
5	5	7.9	7.2
4	6	8.1	7.4

This combination gives a range of $P_H =$ 6.3 to $P_H =$ 8.1, this being sufficient to include all the media with which I have worked, varying in titratable acidity from +0.5 to +1.5 (phenolphthalein). The above solutions are quickly prepared and those containing phenol red will retain

their color from 2 to 3 weeks. The brom thymol blue colors fade very quickly.

SUMMARY.

Data have been presented on the relation between the titratable acidity, using phenolphthalein as an indicator, and the hydrogen ion concentration. This relation depends entirely upon the ingredients of the medium.

Sterilization effects appreciable change in the reaction of neutral and alkaline media and but little change in acid media.

Barnett and Chapman's titration method, slightly modified and extended, will give good results for routine laboratory work.

The hydrogen ion concentration of a medium is one of the most important factors in obtaining optimum growths of bacteria. This is illustrated by the growth of pneumococci in broth of higher titratable acidity than theretofore reported, but with proper attention to the actual hydrogen ion concentration.

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PUBLIC HEALTH NURSING IN THE EXTRA-CANTONMENT ZONE.

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PEACE, with all its wonderful significance, bursts upon us with the realization of opportunities for the fulfillment and development of the work which has only been started in connection with the government. Public health and public health service, recognized during the war as of fundamental importance to the prosperity and productiveness of a nation, promise to be made the keynote of the reconstruction programs of this and European countries. The public health nurse will play an increasingly important part in all public health work, as the person in it who reaches the individual. Public health service cannot be 100 per cent efficient unless there are enough public health nurses to reach every man, woman and child in the country.

The United States Public Health Service, the government's arm for health from the moment war was declared, has had its important piece of work to do in order to make safe and healthy all zones surrounding camps, not only for the military forces but for the civilian population as well. The correction of the dangers lurking outside the camps, such as the mosquito and fly-breeding places, insanitary handling of food-stuffs, the often polluted water and milk supply, the lack of isolation of communicable diseases, has without doubt been some of the very important pieces of work done by the United States Public Health Service, in order to help deliver direct to the firing line men physically fit. It was recognized immediately that no amount of preventive work within the training camp itself could assure this outcome; and that with a camp of, say, 65,000 men within easy distance of a city or town, there would be from one to two soldiers in every home

at least once a week, while hotels, cafés, restaurants, soda fountains, amusement places, swimming pools, barber shops, public conveyances, etc., would be constantly patronized by the soldiers. The crowded and often insanitary places where the soldiers' families were forced to live in order to be near the camp offered one of the greatest problems confronting the workers. A member of the medical profession of London has recently said, "The hope of the conquest of disease lies in prevention, which must be international as well as local. In this respect no man and no community can say that they live to themselves. A badly constructed drain in a country village, contaminating a source of water supply, may give rise to an epidemic of great proportions and this may conceivably be carried by hosts of one kind and another to the world's end."

At the time peace was declared, thirty-seven zones were in good running order. In the majority of these zones at the beginning of the war there was no organization for public health nursing. There were, in a few instances, visiting nurses who were giving mainly bedside care. In a few others there was a certain amount of school supervision of a very incomplete character. But the bringing together and pooling of resources had not been introduced, nor had the great economic and educational value of the public health nurse been demonstrated by this method in any of the zones. Through the assistance of the Red Cross, two hundred trained public health nurses were placed at the disposal of the United States Public Health Service and distributed throughout the twenty-two states which the thirty-seven zones represent. A certain percentage of them were assigned to school work and to follow-up work in the homes, where they were able to interpret to parents the great importance of corrective work, and what is of even greater consequence, to discover hidden dangers in the way of communicable disease which had either not been reported or had not even been considered important enough to require the services of a physician. Thus in four of the zones, while doing the regular routine work, we find the public health nurses recording for one month 574 cases of communicable disease which had not been previously reported. Who can say what the result would have been, both to the men in training in these cantonments and to the civilian population, had there been no nurses to help in their protection—how many hospital cases to be cared for and how many nurses needed to nurse back to health, if possible, from sickness which was thus checked at its source! For at this rate thirty-seven zones would average 5,291 cases discovered by the nurses in one month. As another example, a child in a kindergarten was discovered to have diphtheria. All contacts were cultured, with the result that two carriers were found, and after proper isolation and treatment and a thorough cleaning of the schoolrooms, no further cases developed.

During the disastrous influenza epidemic, which has proven more fatal even than war in its total mortality, there were many zones with not more than a hundred hospital beds to meet the needs of from ten to twelve thousand cases of influenza, with many developing into pneumonia; and it is impossible to estimate the amount of neglect which would inevitably have resulted but for the numbers of trained public health nurses ready throughout the country to supervise and direct the work of hundreds of untrained assistants.

During the summer months, when the schools were closed, it was possible for the public health nurses to help establish and in many zones carry on, in con-

nection with their routine work, the program launched by the Children's Bureau for the weighing and measuring of babies and the establishing of welfare clinics. The results were almost beyond belief in the coöperation of thousands of mothers and the opportunities open to the nurse to come into direct contact with the home life, that most important of all factors in the fight against disease.

Industry, too, has opened its doors and here the public health nurse has an enormous field for useful activity in services rendered both the employer and the employed, for in nursing the sick to early recovery and return to work, she is doing work of actual economic value, getting maximum economic results.

One of the most important pieces of work accomplished during the term of the war has been the establishment of the venereal clinics in connection with the other zone work. Many of the clinics are in cities and towns where such care has never before been available. The social aspect of these diseases is at last receiving the attention which we, as public health nurses, have long felt the need of. Attached to many of the United States government clinics are social service departments, conducted by socially trained public health nurses whose business it is to ascertain the moral, economic reasons for the infection of each person applying for treatment. The responsibilities of the nurses in these clinics have been of a varied character, the most important being the protection of the military forces, the safeguarding of the community, and the care of the individual and his innocent family. As the work has developed, the enormity of the problem becomes more and more apparent, and the definite program being worked out by the United State Public Health Service in the newly established Department for Venereal Diseases has become a nation-wide movement.

So far public health nursing has been mainly carried on by private agencies and organizations. The National Organization, formed in 1912, aimed to standardize public health nursing work and training, to establish public health nursing courses in training schools and universities and to secure scholarships for these courses, and to do everything possible by this means to prepare to meet the demand for public health nurses which is arising on every hand and which will be enormously increased by the national health program proposed by the United States Public Health Service through rural and industrial hygiene demonstrations in which the public health nurse will be called upon to play an important part. During my fourteen months' work in the zones, I have been in close touch with the situation in each of them and have had unusual opportunities to study the possibilities for development. The time has come, in my opinion, to create through legislation a division of public health nursing within the State Department of Health, with a qualified public health nurse as the chief, answerable to the commissioner of health, and with county units so distributed as to insure covering the entire territory. Never in the history of the world has the field been so rich and ready for the well-educated, well-trained, enthusiastic public health nurse with the vision of a strong race of healthy men and women.



If You Need a Well-Trained Sanitarian for Your Town, Let the A. P. H. A. Help Employment Bureau Know.

INDUSTRIAL LIGHTING.

C. E. Clewell,
Assistant Professor of Electrical Engineering, University of Pennsylvania.

Read before the Industrial Hygiene Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

DURING the past decade a remarkable change has taken place in the attitude towards the physical environment of American industries. Employers and shop owners, in general, have come to view the practical problems connected with adequate ventilation, highly sanitary shop conditions and pleasing surroundings as having a vital relation to the efficiency of their working forces. Satisfactory natural and artificial lighting in the factory is one of the important phases of such environment, and the principal object of this discussion is to point to certain aspects of the industrial lighting problem in their bearing upon industrial hygiene.

Factors Which Have Influenced the Situation.

Several forces have been at work during the past few years, which have centered the attention of factory employers more and more upon the problem of standardizing lighting conditions and upon the attainment of highly effective illumination results. One of these has undoubtedly been the development of new and greatly improved window arrangements for industrial buildings, and another, the advent of electric and gas lamps possessing unusually high efficiencies of light production compared with the illuminants available but relatively few years ago.

It is difficult to realize that scarcely ten years have elapsed since the tungsten electric lamps began to find a place in industrial lighting. More recently, the improved gas filled type of the tungsten lamp has become a practical realization. The introduction of these new types of lamps, which are capable of producing three or more times the quantity of light for the same energy consumption than the older carbon filament lamps, has brought with it the possibilities of greatly improved factory lighting planning. This feature can hardly be overestimated when it is considered that many limitations were imposed in the earlier practice by older forms of illuminants.

Another and, perhaps, equally significant force which has made itself felt in the attention given to the lighting problem by manufacturers and employers, has been the growing tendency for those responsible for labor conditions to pay more and more attention to the needs of the workingman for suitable physical surroundings, if he is to be expected to perform his work accurately and without undue fatigue. There is little or no difficulty in grasping the idea that good light, whether it be natural or artificial, is essential from this standpoint. To the student of industrial hygiene, the lighting problem appeals in its relations to such factors as the health, the comfort and the conservation of eyesight of the factory employee, and also, possibly, in a measure at least, to the great problem of accident prevention.

Economic Phases of the Problem.

To these factors relating to industrial hygiene, there might be added such phases of the problem as that of the effect of good light upon production rates, that is to say, the comparison of poor with improved light on the rate at which an employee can perform his daily tasks. To those who are inclined to view the situation purely from the standpoint of in-

dustrial hygiene, it is perhaps quite natural to conclude that the health and the eyesight of the vast working forces of America's industries demand in themselves an adherence to the elementary principles of good light for factory interiors. This attitude assumes as a matter of course that the delinquent employer should be led to reform his factory lighting conditions so as to make them accord with the ideals of those charged with the modern conception of industrial hygiene, and that if persuasion fails, he should be required by legal regulations to take such steps.

The appeal from the humanitarian viewpoint is usually strong enough to reach the liberal and progressive employers, of whom fortunately there is an ever-increasing number in this country, but there will probably always be found a considerable number who lean upon the "let well enough alone" policy, and to whom these altruistic motives make little or no appeal. It is indeed fortunate, therefore, that for such cases, there is another and sometimes more effective argument through the channel of self-profit, based on the fact that time and again good lighting has been demonstrated to be closely related to increased production, less spoilage and more satisfactory conditions of shop management than is the case in those factories which are perpetually gloomy due to inadequate window areas and to insufficient artificial lighting facilities. It is also true that the prevalence of accident compensation laws has led many an employer to view the advantages of good lighting conditions as an important factor in the minimizing of accidents and in the attendant reduction of workmen's compensation insurance rates.

Lighting and Health.

While my own experience and observation in the lighting field during the past ten years has been more especially concerned with the engineering aspects of factory lighting, no student of this phase of shop environment could well fail to detect the close relationship which exists between good light and particularly between adequate natural light and the health and eyesight. It is sufficient for our present purposes merely to mention a few of the papers which have treated of this side of the lighting field, remembering, at the same time, that there is much room for further and more conclusive research in this phase of the problem.

One of the most complete papers of this nature is that of Schereschewsky and Tuck* on "The hygienic conditions of illumination in workshops of the women's garment industry." This interesting survey of the lighting conditions in various buildings of this class in New York City, contains in its opening paragraph a statement that may here be quoted as giving a good idea of the importance of the subject in relation to industrial hygiene:

"In view of the fact that a large part of the industrial operations in the women's garment trades involves the close and continuous use of the eyes, the illuminating conditions which prevail in the workshops of the industry become highly important from the standpoint of industrial hygiene. The necessity for adequate and correct illumination on the various working planes becomes the more apparent from the consideration of the data in relation to the vision of garment workers contained in the foregoing portion of this report.† These data show that only a little over 25 per cent of the workers whose visual acuity was tested had normal vision in both eyes."

Other Important Viewpoints.

In this same general connection, the following quotation from an article‡ by

*P. H. Bulletin No. 71, U. S. P. H. S.

†Part 1 of P. H. Bulletin referred to in footnote 1.

‡Published in "Fenestra" by the Detroit Steel Products Company.

Dr. Katherine M. H. Blackford, is of interest:

"I have examined the health records of many large factories, and in many cases have been astounded at the total number of days' work lost in the course of a year. Upon analysis, these records showed that by far the most common complaints among employees are colds, la grippe and pneumonia.

"There is no need for any employer to guess at the cause of these troubles, nor is there any question as to the best way to prevent them. Let the facts speak for themselves.

"One factory which I was called upon to investigate was in an old-fashioned building, with small windows, most of them covered with the accumulated dust and dirt of years, and only the most crude and primitive methods of ventilation. I found in that factory that out of a possible 31,173 days' work, there was an actual loss of 3,512 days or nearly $11\frac{1}{4}$ per cent.

"In another factory, doing the same kind of work, in a modern building with excellent light and scientific ventilation, I found that out of a possible 85,765 days' work, there was a loss through illness of 1,547 days' work, or only about 1.8 per cent.

"The case of these two factories would not necessarily be conclusive, but in all my experience I have found the same general relationship between light and ventilation and the number and length of absences due to illness."

These statements indicate the importance of adequate window areas both from the standpoint of ventilation and of light, and they tend to demonstrate the value of modern ideas of factory construction where a large proportion of the side wall and roof areas are devoted to windows.

Illumination and Eyesight.

The relation of modern artificial lamps to the eyesight of those who work under these lamps forms a subject of utmost concern to those responsible for the industrial hygiene of the working classes. In recent years electric lamps have been developed which are vastly superior to the older types in the quantity of light produced for given energy consumption, but unfortunately, these modern lamps possess such a high degree of light concentration that the glare effects due to the excessive brilliancy are harmful to the eyes of workers unless unusual care is taken to protect the eyes from direct light by some form of shade.

There is a common tendency among those who have made a special study of industrial lighting conditions to feel that the greatest single error in the use of lamps for the artificial factory lighting system is in a neglect of the proper devices for shielding the eyesight from these pernicious bare lamps. No less an authority on eyesight than Dr. George E. de Schweinitz, the noted ophthalmologist of Philadelphia, has said that "The work of a national committee for the prevention of blindness should not be concerned alone with the prevention of blindness, in the strict sense of that term. It ought to be concerned with, and surely is much interested in, the elimination of the evils which spoil eye efficiency. I am thinking about Elsa and the fading light, and I am thinking, too, of the kind of light that ought to exist in homes, in schools, in factories and in stores."*

There can be little question in these days of highly brilliant light sources that more attention is required for safeguards against eye injury and possibly less for the attainment of the utmost in efficiency.

* Journal A. M. A., Vol. 66, No. 6, p. 396.

Both sides of the question are obviously important, but the latter should not receive all the attention to the exclusion of the former.

Engineering Aspects.

In a paper of this kind where the chief emphasis is placed upon the relation of light to industrial hygiene, it is desirable merely to touch briefly upon the engineering aspects of the industrial lighting problem. The fact that detailed investigations into the accident rates in given industries have shown the percentage of accidents to be greater when the work is performed under artificial light than under natural illumination, may be taken to mean that all the more care should be devoted to the careful planning of the artificial lighting system so as to eliminate the presence of factors which contribute to the likelihood of accidents.

Among the factors is that of the prevention of glare as previously mentioned. In the minimizing of glare one possibility which has gained widespread acceptance is the plan of mounting the lamps well overhead so that they may shed a general illumination over the entire working area. Another item is the matter of uniform lighting conditions in contrast to the scheme of placing the lamps down close to the work, with each lamp enclosed by a metal cone-shaped reflector so that merely a small spot is illuminated beneath each lamp. With such systems, the aisles and quite a proportion of the floor area may be in comparative darkness, thus tending to an undue accident rate caused by the workmen being obliged frequently to transfer their line of vision from relatively light to relatively dark spaces.

It is only fair to the manufacturers of lighting appliances, to say that the shades and reflectors as well as the lamps now available for artificial lighting, when properly selected and used, can be made to produce highly efficient as well as comfortable lighting conditions. In like manner, the manufacturers of window sash have taken a very active part in the developments of modern factory building design, and in many cases not only is the window arrangement planned so as to provide unusually excellent natural lighting conditions, but also very effective results in ventilation.

Summary.

The foregoing notes are intended mainly to present a very important aspect of factory environment. Natural and artificial lighting, while only one of the factors which enter into industrial hygiene, affect one of the most important aids to all manufacture, namely, the eyesight. Emphasis has been placed upon the fact that while factory illumination is vitally concerned with the problem of industrial hygiene, it is also very much concerned with the engineer, both in the selection and installation of the lighting facilities. From a number of standpoints, industrial lighting forms an important part of the many-sided problem of factory management, and when considered in terms of the attitude of today towards such phases of the relationship of employer and employee, it would appear that the proper lighting of the industries is destined to receive a greater degree of attention than has been the case in the immediate past.

I venture the hope that the ideas advanced may be suggestive of the importance of this aspect of the shop environment, and that they may possibly lead one or another to the thought of adding to the all too meager fund of knowledge concerning the influences of light as a factor in health and in the conservation of eyesight.

SANITATION AND CONSERVATION IN THE MUNICIPAL UTILITIES OF ROCHESTER, N. Y.

EDWIN A. FISHER,
Acting City Engineer,
and
CAPTAIN JOHN F. SKINNER,
Principal Assistant Engineer.

Read before Sanitary Engineering Section, American Public Health Association, at Chicago, Ill., December 8–12, 1918.

WATER SUPPLY, SEWERAGE SYSTEMS AND REFUSE DISPOSAL.

THE topographic situation of the major part of Rochester is such that not only no pumping is required in either the domestic water supply or the sewage collection and disposal, but some little return is derived from power developed in both cases.

The mean level of the city is about 388 feet below the mean level of Hemlock Lake, the present source of the domestic water supply, and about 260 feet above Lake Ontario into which the storm-water and the effluent from the sewage disposal systems discharge.

The domestic water supply is from Hemlock and Canadice lakes, with the future possibility of two more lakes in the immediate locality—thirty miles south of Rochester. The total available watersheds have an area of 170 square miles, of which 7 per cent is water area. The highest of these lakes lies about 580 feet above the mean level of the city and the lowest about 286 feet.

The two lakes now in use are each about 86 feet deep, and their shores have been purchased and protected. There are but a few hundred people on their watersheds, and the water is rendered safe by long storage in the lakes.

As water is collected from the catchment area of the outlet of Canadice Lake, and as this is a quick watershed, it was deemed prudent to install a liquid chlorine apparatus.

At Hemlock Lake gate-house a turbine has been installed and a portion of the supply is passed through it, thus utilizing the excess head which was provided for safety in case of a very low lake, thereby furnishing power to light the gatekeeper's residence and grounds, pump water for use in the buildings, and compress air to operate a small sewage ejector, etc.

About 200 acres of land owned by the city are under cultivation, and while no profit has been derived from the crops thereon, the use of this land has been in line with the general idea of conservation. There has also been set out on the watershed, during the past twenty years, about 900,000 spruce seedlings.

In both of the distributing reservoirs large central fountains utilize the excess head provided, and furnish an interesting park feature which has sometimes been enhanced by the use of colored spot lights projected on the spray.

Works are now constructed for conducting the waters of Hemlock and Canadice lakes to Rush (storage) Reservoir, about ten miles from the city, through three conduits, and also from Rush Reservoir to the distributing reservoirs in the city. Two additional conduits will bring in the remainder of the supply from the total watershed. The Rush storage reservoir holds about three days' average supply for the city, and the two distributing reservoirs, Highland and Cobb's Hill, on a range of hills on the south side

of the city, contain respectively one day's and one week's supply.

Highland Reservoir was constructed with the original works in 1875, and Cobb's Hill Reservoir was begun thirty years later. They are at the same elevation, about 125 feet above the mean level of the city, and furnish through an excellent system of distribution a pressure of about fifty pounds.

The city is crossed from northwest to southeast by the Erie Canal and the New York Central Railroad, and from south to north by the Genesee River. The new Barge Canal crosses the river at grade a little south of the city, and the river will be used as a harbor for three miles, or nearly to the business center.

Immediately north of the business center the river falls precipitately ninety-eight feet, and two other falls in the next two miles bring it to the level of Lake Ontario. It then flows from the Lower Falls through a beautiful gorge about five miles to its mouth, the Rochester Harbor, on Lake Ontario.

The total fall through the city is about 260 feet, and the falls are thoroughly utilized by the local electric light company and other private owners. A proposed storage dam up the river, at Portage, would make the power from this 2,500-square-mile watershed more dependable.

With this fall to Lake Ontario and the general northerly dip of the surface the ultimate disposal for sewage was indicated as dilution in the lake, although for many years the river served the purpose adequately.

The sewers built were generally of the combined type, and when the subject of "disposal" was seriously undertaken, the first work was the construction of an interceptor which would reach the mouths of the sewers entering the river. This was largely in rock tunnel, six feet in diameter, and was arranged to carry the dry-weather flow and about 250 per cent additional of storm-water, after which each of the old main sewer outlets to the river acted as a storm overflow.

The outfall sewer to the disposal plant site at the lake secured descending grades throughout, and the conduit was varied in diameter from six feet to eight feet, dependent on the rate of grade.

The plant consists of racks and six large grit chambers arranged in parallel and followed by Riensch-Wurl screens of $\frac{1}{16}$-inch, $\frac{1}{8}$-inch and $\frac{3}{8}$-inch slots, from which the screenings are removed on a belt conveyor to industrial cars operated by storage battery locomotives.

The sewage then passes through ten Imhoff tanks in parallel and into a lock-bar steel penstock where, with about fifty feet head available, the normal sewage flow generates about 150 H. P. and then flows through 9,000 feet of 66-inch lock-bar steel pipe under the bed of Lake Ontario to a discharge in fifty feet of water a mile and a half from shore.

The extensive sludge beds furnish a fertilizer which is being used on a 300-acre farm of fine, sandy loam, which constitutes the sewage disposal property.

The power developed lights the plant, operates screens, conveyor and gates, pumps water and charges the storage battery locomotives, and the surplus is sold to the local lighting company through the break-down line which was constructed to its plant for safety.

Since putting this plant into operation in March, 1917, the fish which had deserted the lower river for a number of years, are said to have come back, and pleasure boating has been resumed.

The plant above described is often referred to locally as the Irondequoit or Main Disposal Plant.

A second, much smaller, construction, known as the Brighton Disposal Plant,

serves the eastern part of the city which is too low to discharge into the main outfall sewer. This is a separate system, but the sewage is diluted by considerable infiltrated ground water.

This territory within the city at present contains 1,386.5 acres. About double this area can be served by this plant when the city boundary is extended somewhat, and certain projected sewers are constructed. Ultimately the sewage of 60,000 people can be cared for at this plant.

It is planned for future extensions, and as at present constructed will care for a population of upwards of 10,000 people.

It consists of three parallel detritus chambers each followed by a fine bar rack, an Imhoff tank of two cells with a pair of sludge beds, an operating house, an automatic dosing device, a pipe gallery, an acre of sprinkling filter area divided into two units each discharging into a final sedimentation basin and thence over a measuring weir and through twin effluent pipes to Irondequoit Creek, three-fourths of a mile above the head of Irondequoit Bay, which is itself a deep arm of Lake Ontario, about five miles long.

The operating house contains a Pelton water wheel actuated by the sewage, with a head of seventy-five feet from the screen house, an electric generator and switchboard, an air compressor and receiver and a laboratory. Clarified sewage is pumped for sprinkling, heat is furnished for sterilizer, oven, muffle furnace, incubator and hot plate, and the plant and grounds are lighted by the power thus obtained.

The plant was first operated March 1, 1916, and has always produced a clear colorless, odorless, and stable effluent.

It was deemed advisable to carry the process further than at the main plant and provide for oxidizing the effluent before its discharge into the stream.

Records of operation for the year 1917 are available and may be condensed as follows:

BRIGHTON PLANT.

Total quantity of sewage treated in 1917 ..... 371,000,000 gal.
Total cost of operation 1917 ..... $4,236.86
Cost of sewage treatment per million gallons .. 11.42
Detritus removed per million gallons .... 0.74 cu. ft.
Screenings removed per million gallons .. 0.67 cu. ft.
Sludge removed per million gallons in Imhoff tank ..... 1.116 cu. yd.
Sludge removed per million gallons in final tanks ..... 1.055 cu. yd.
Total removal per million gallons 2.223 cu. yd.
Settleable solids in crude sewage 2.56 cu. cm. per liter in 2 hours
Settleable solids removed in Imhoff tank 98%
Suspended solids in crude sewage 123.9 parts per million
Suspended solids removed in Imhoff tank ... 76.2%
Suspended solids removed in entire process .. 91.7%
Nitrates, parts per million in { crude sewage .. 0.27 / final effluent .. 5.29
Dissolved Oxygen per cent saturation { crude sewage ..... 38.3% / final effluent 66.5%

	Imhoff Tank.	*Final Basins.*
Specific gravity of sludge	1.08	1.11
Per cent moisture	82.3 %	82.9 %
Volatile matter in dried sludge ..	22.8 %	16.9 %
Total organic nitrogen in same	2.74%	3.84%
Ether soluble matter in same	3.77%	

The city collects and disposes of its garbage by day labor. The garbage is treated by the reduction process, and the grease and tankage sold by the city. The refuse is also collected by the city and disposed of by sorting out paper and other valuable material and the remainder passed into furnaces in the incinerator plant operated by the city.

This operates during an eight-hour period in the daytime; at the garbage plant the reduction process goes on during the night. In order to conserve the steam from the incinerator plant it is disposed of to the local railway and light company, which company in turn furnishes steam for the reduction of the garbage.

EFFECT OF FOOD CONTROL ON THE FOOD SUPPLY.

HARRY E. BARNARD, PH.D.,
State Food and Drug Commissioner, Indianapolis, Ind.

Read before Food and Drugs Section, American Public Health Association, at Chicago, Ill., December 10, 1918.

FOOD control as a function of government is exercised for the protection of the consumer from fraud and deceit and from the injurious effects of unwholesome foods which uncontrolled would reach the table. In the past twenty years the control of the food supply through federal, state and municipal agencies has reached a state of perfection creditable alike to the official and the manufacturer and distributor. The percentage of adulterated and misbranded samples has steadily decreased, and the quality of the food supply has on the whole as steadily improved. So it was that when some eighteen months ago we learned that we were to win the war with food we were producing foods under well-regulated conditions, both as to sanitation and the character of raw material, and we were safeguarding the quality of those foods along the long road between the producer and the consumer.

Some years ago when restraint was new and regulations were viewed with distrust, there was a general feeling that trade would be hampered rather than helped by supervisory control. This impression, not altogether wiped out, was visualized rather strongly when the issues of war made it necessary to restrict the food supply at home that those who were fighting for us, our allies and our own, might be fed.

It was no easy task to change the eating habits of a hundred million free-born people almost over night. It was the harder because at least half our people were producers or lived close to the sources of production and, because they could see around them the abundance of the last harvest, they gave little heed to the tales of famine and the hunger-call that came from people they did not know. But as their sons became soldiers and sailed away to take their part in the world war, their horizon widened, they understood why food was a munition of war and they obeyed, even to the letter, the regulations of the food administration.

Wheat bread, white and fine, has been our staple food. When wheat was demanded for export in quantities far in excess of our actual reserve supply we had to find a substitute for it. And so the slogan—Reduce the eat in wheat and meat and toot the tute in substitute. The word substitute has always sent a shiver down the spine of the food control official. He has held that the real thing was none too good and he has checked in every possible way the introduction of substitute foods. So the war program was rather upsetting both as to his dogmas and his practice. Fortunately for the conservation campaign, and his own stability, no food official imposed on the consumer his personal ideas as to the use of oleomargarine or glucose or corn flour. On the contrary he most heartily entered the substitute campaign and with his organization and by his example led the way to as real a victory for Hoover's army as that won by our soldiers in the Argonne forests.

Today we are looking back on war. In less than a month the nightmare of triumphant Mars, dominating a suppliant world, has faded to the littleness of a bad dream. We are again a peaceful people—independent in thought and deed—living our normal lives and eating what we want to eat. The food control measures which grew out of war's neces-

sities are for the most part abandoned. The sugar bowl is back on the table. Meatless days are forgotten. White bread is again the staff of life.

We have now an opportunity to review the experiences gained in the two types of food control and perhaps to find an answer to the question so often put to us—Does food control increase prices, restrict commerce, discourage invention?

There is no doubt that the first regulatory statutes checked the inventive genius of the manufacturers who saw fortunes in the production of honey from glucose, cider vinegar from grain distillates and caramel, strawberry jam from apple stock and anilins. Very probably the price of some staples increased temporarily when fraudulent competition was removed. Markets flooded with cheap and imitation products, masquerading under fraudulent labels, are not receptive of pure, high cost goods. Good milk, before sanitary dairy control, sold at the price of the worst milk in the market. And naturally with the removal of vicious competition, the honest product, true to name and certain in quality, earned its reward in stimulated demand and increased values.

But this very condition quickly reversed the upward curve. For capital, no longer fearing unfair competition, sought investment in the food industry. The manufacture of staple foods increased. Competitive brands became numerous. The best goods for the price won the goodwill of the consumer, with the result that in 1914 food prices were at a minimum and food quality was the highest in history. The reports of the food analyst during the fifteen-year period, 1900–1915, showed a constantly decreasing percentage of adulteration. The work of the inspector in the field was increasingly fruitless as to the number of samples of adulterated foods he took, and always gaining in value because of the tendency to constructive and helpful work both at the factory and the retail store.

If food control, fairly administered, has checked the development of the food industry, no evidence to that fact is available. On the contrary the amazing progress of the canning industry, from the sardine packer in Maine, who reluctantly accepted inspection only to find in it his salvation, to the corn canner in the central states who had to be forced to pack true sweet corn instead of field corn sweetened with saccharin, most definitely attests the commercial value of food control. The meat packer, who once fought federal supervision, now recognizes Uncle Sam's inspectors as his best advertising asset; the baker, who worked behind closed doors, now proudly acclaims his plant as a palace of cleanliness and urges his patrons to inspect his white tiled walls, his spotless work rooms, and the health records of his medically inspected employees.

As I look back over nearly twenty years of active control work I find but few laws that have checked the development of food industries, or tended to increase food prices. Among these few, one law in particular stands out as a striking example of vicious legislation, deliberately enacted and enforced against one legitimate industry for the purpose of stimulating another. That law is the oleomargarine law on the Federal statute books and its counterpart as it is enforced in many of the states. Oleomargarine legislation, demanded by the dairy interests to protect them against the assault of illegally sold oleomargarine, has taken the form of revenue legislation and by the imposition of taxes has sought to cripple competition. And for many years a perfectly wholesome food, made of the finest of raw materials, in sanitary and inspected factories, has gone to market bearing an

indefensible tax or has sought the user under the name of butter through illegitimate channels which would have little reason to exist if the evasion of the tax did not offer handsome profits. And today the housewife who wants a yellow oleomargarine either pays ten cents a pound as a tax for the privilege of pleasing her eye or goes to the trouble herself of incorporating the color in the spread before placing it on her table. But the butter manufacturer is legally authorized to use the same color in the same way and for the same purpose without declaring the presence of added color or paying any tax for the privilege. Of course there is no justice in either case. Added color undeclared adulterates the butter just as it does oleomargarine and the tax is an indefensible burden laid on the working man's table. And the burden is as unnecessary as it is indefensible. Every food law, federal, state, or municipal, controls fraud, and it is just as easy to stop the sale of oleomargarine for butter under that law as it is the sale of watered milk, or imitation vinegar, or adulterated spices.

The argument advanced by the dairy interests that their product needs protection is of course as silly as it is unfounded. Any product that is constantly advancing in price needs no protection from competition. The demand for butter from every consumer who can afford to pay the price for flavor, food value and universal adaptability in the kitchen, will take care of competition. Butter, well made from good raw material, needs no protection. Oleomargarine, an equally good food, should have free access to the table of every one who wants it.

The regulations imposed in the interest of milk supplies of unquestioned purity have increased production costs, in some ways very materially; better barns, sanitary milk houses, sterile packages, refrigeration, tuberculin tested herds, all cost money but they increase milk values even more proportionally. No price is cheap enough for poor milk. Any price in reason is not too high for the food our children must have. And so the protest of the short-sighted dairyman that the sanitarians are forcing him out of business is of little weight and quite as invalid is the wail of the consumer that regulations of the health department are increasing the price of food.

Some years ago Congress was prevailed upon to pass the mixed-flour law, ostensibly as a revenue measure, actually as a protection to the flour miller from the theoretical danger of the competition of corn flour. Mixed flours must now be prepared in licensed factories and sold, tax paid, under special labels. There is, of course, no objection to labelling mixed flours. They should be so labelled but no logical food official can find any reason for the tax. The Victory flours recommended for use by the United States Food Administration were subject to the tax and restricted sale because of the necessity of licensing the miller and blender. There was no way around the obstacle placed in the path of commerce by Congress, not even when the conservation of wheat was a vital war necessity.

In some ways the prohibition of the use of preservatives has tended to increase manufacturing costs. Chemicals secure keeping qualities more cheaply than proper sterilization and selected raw materials. And fortunately, for the consumer, most chemical antiseptic agents are taboo in the nation's food supply. No sanitarian would countenance their use in order to cheapen costs when by their presence the wholesomeness of foods so preserved is materially reduced. During the sugar shortage, we have heard, especially from the bottling and ice cream trade, a demand that the use of saccharin be permitted as a sweetener. But when

the voice uttering the demand was diligently sought, it appeared that the cry was that of the salesman for the saccharin manufacturers who were taking an opportunity to capitalize the stress of war for their own benefit. By no stretch of the imagination can we visualize a cheaper sugar supply as the result of letting down the bars to this the most notorious fraud recorded in the annals of food control.

The regulatory work of the United States Food Administration has been most successful. The control of the baker, miller, commission merchants, broker and large grocer has functioned through the development of a license system that denied the right to do business except to licensees, and provided for forfeitures of licenses in case of proven violations. This control, arbitrary and unprecedented, was feared at first. But it was very soon found to be a real stimulus to good business, and today, though regulations are being rescinded, the licensed industries are better business houses because they were compelled to adopt modern methods of accounting and stock recording, to sell products in uniform packages, to eliminate speculation and forego speculative profits.

The control of food industries by the Food Administration will cease with the signing of the treaties of peace. But the lessons of the past year and a half will not be forgotten and it is very probable that many of the regulations will, when they do not violate the state or federal constitutions, be enacted into law.

If the food supply in the years to come is more abundant, more readily conveyed to market, cheaper because we have learned how to increase crops and reduce wastes, facilitate free movements by rail and motor truck, eliminate profiteering and gambling, the necessities of war may, in a very real way, become the blessings of the people.

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Water Purification on Wheels.—In order to supply the troops in France with pure water, a number of miniature water works have been placed on motor trucks. These follow the army in its movements. The water is treated by rapid sand filtration and then with liquid chlorine. The water is then stored in tanks which serve as clear water reservoirs.

Each unit not only has a treatment plant, but is also equipped with a laboratory. A chemist, bacteriologist and a pump man are attached to each unit. These men carry out the necessary tests and supervise the purification of the water. Tests are made every two hours.

A number of these units constitutes a water tank train. The unit pulls up near a stream and the water is pumped from the stream by a gasoline engine. Each unit is furnished with extra pipes and tools, so that all repairs may be made on the spot without delay. The trucks are equipped with electric lights so that work can be carried on at night. The units are operated by the personnel of the Sanitary Corps of the Medical Department.—*Municipal Journal*, July 13, 1918. (*M. P. H.*)

Italian Opinion of the Nature of Influenza.—Influenza is a polybacterial epidemic. No one germ is responsible for it. The germs causing it have had their virulence suddenly enhanced by some mysterious influence, electric, atmospheric or telluric, some sudden modification of the physical and chemical ambient in which mankind lives. Besides the bacteria, the pathogenic factor is probably a complex of many minute causes. These of course are beyond our range of knowledge. Too little is known yet of these "cyclonoses" for us to hazard any serious contributions to this important subject.—U. Baccarani, *Riforma Medica* (*Naples*), 34, 870 (1918); *Jour. A. M. A.*, 72, 151 (1919).

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Prophylactic Inoculation Against Pneumonia.—Preliminary clinical reports seem to be highly satisfactory. The author feels definitely assured that the vaccine will prevent infection by types I, II and III. The lipovaccine is such that much additional pneumococcus material may be added, without increasing its toxicity.—E. A. Fennel, *Jour. A. M. A.*, 71, 2115 (1918).

PRESENTING TRUTHS TO THE PEOPLE.

Philadelphia Street Railway Aids in Health Education.



This is the striking way in which Dr. Wilmer Krusen, Commissioner of Health and Charities of Philadelphia, presented a truth to the people of his municipality. This poster was displayed on the front of the trolley cars in his city during the recent epidemic of influenza, and, as one can see at a glance, used the unfortunate situation to impress on the people an exceedingly important lesson in sanitation and health. Other equally striking legends adorned other cars, and similar ones on a smaller scale depended from the electric light poles. This picture is presented through the courtesy of the Philadelphia Department of Health.



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How the A. P. H. A. Membership is Running Up?
Keep the Ball Rolling—Send Along a New Name.

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THE EXECUTIVE COMMITTEE AT WORK.

It is worth while for members of the Association to cast an eye over the minutes of the meeting of the Executive Committee in this issue and see how already the Association is beginning its work in a larger field. The gift of the Chicago Committee of the balance remaining after the expenses of the meeting had been paid is important as showing the feelings in that great city towards work of the Association.

It will be seen that the Association intends to make its members better acquainted one with another and with the general work of the Association, by sending to all of them a monthly, gossipy little sheet, the *News Letter*. To this all members are invited to send notes of a light and newsy character.

Already the matter of enlarging the field of the Association has taken shape in cordial relationships with the fraternal organizations. These will be able to help the Association in its efforts towards the education of the public in health matters, by bringing the thoughts which the American Public Health Association may be able to present to them to their own enormous body of constituents. Public health education, through the support which it will afford, is the foundation-stone for a better public health administration.

It will be noted that the Association is ready to advise and coöperate with state, provincial, and municipal boards, with a view towards assisting them to obtain proper legislation. This important function, however, is dependent upon funds, and the activity of the Association in this line can be undertaken only in ratio to its financial backing. The position taken by the Executive Committee in the support of bills before Congress is important because in the mass of conflicting evidence which will always be presented to legislative committees by different interests, the body that can present sane, reasonable, and unbiased opinions will have always an important function.

Coördination was the keynote of President Vincent's ringing address at the Chicago meeting. It will be of interest to all of the members to realize that the Executive Committee has had under discussion for perhaps two years the formulation of plans towards a similar end. This now takes tangible form in the vote that the President

call a conference of the largest national health organizations towards coöperation and coördination of effort. In the same vein is the suggestion by Doctor Evans to bring together the special state societies through federation and to advocate the creation of a central state council. In the same direction is the suggestion that the draft of a model constitution for state health societies be prepared.

It is interesting to see that the plannings for the meeting at New Orleans are already under way. The date proposed by the New Orleans Committee, October 6–9, has been practically accepted, and the occasion will be one in which the Association may give a tremendous impetus to the anti-malarial program in the South, through its ability and opportunity for bringing together governors, mayors, and health administrators, who can discuss the situation together and benefit each by the experience of the others.

The enormous importance of personal hygiene, emphasized by the attention which the war has given to it, will lead to discussion at New Orleans with reference to the formation of a new section in this specialty.

Chicago devoted its sessions to a very considerable extent to influenza, but in the midst of an outbreak of such universal distribution the question of figures was necessarily left aside. There is every reason to believe that the committee on influenza statistics will be able to present at New Orleans what will be practically an international survey of the pandemic.

It will thus be seen that the Executive Committee is no idle body, that it has in mind not only the larger policies on which the future of our great Association must be based, but is giving attention to those factors like the annual meeting which serve to interest not only members of the American Public Health Association but the great outside population of the country. R.

YOUR HEALTH DUTY TO YOURSELF.

In these days of meeting and mixing with many persons, we are constantly making indirect or direct contacts with these persons, who may be or may not be sources of infection. In times of epidemic, in particular, it is wise to consider every one a possible source of infection, and to avoid all unnecessary contacts. This is the fundamental and essential principle of personal protection, the duty of every one towards himself. Obviously, this means, in the first instance, keeping away from sick people. In influenza in particular, it is well to remember that we are dealing with an extremely contagious disease. Since there is no way of telling whether a person has or has not influenza when it is in its earliest stages, it is wise to consider all colds, and all nose, throat and lung troubles, even though seemingly minor, as dangerous and contagious.

Those whose love or duty makes it necessary for them to care for the sick should take the greatest precautions. Only those absolutely necessary to the care of the patient should be admitted to the sick room. The neighborly habit of dropping in to cheer the unfortunate should be prohibited. Masks have here proven their efficiency and should be worn by all who come into direct contact with a disease like influenza. Dishes and any other articles used and contaminated by the sick person should be sterilized by heat before being used again, or else destroyed.

Almost everywhere spitting is recognized to be a dangerous practice, but it needs but a moment's thought to see that in the same category are the customs of careless coughing and sneezing, and kissing. In fact the latter are decidedly more dangerous. Attention has been focused on expectoration, but in truth, the "unscreened" sneeze or cough may provide a means for the direct and immediate transmittal of infectious material from one person to another.

In this connection it is well to bear in mind that contact diseases are to a large extent crowd diseases. Consequently, crowds should be avoided, not only indoor crowds but outdoor crowds as well. A "close-up" sneeze on the street may be just as unfortunate as a theater sneeze or one in the street car.

Sanitarians know that the hands are instruments of dangerous contact, and it is the constant effort of these men to bring this fact to the knowledge of the public. How

often during the past few months, when colds have been so common, have you shaken hands with another immediately after he has been using his handkerchief in the performance of a respiratory toilet? It is one of the most important lessons of modern hygiene, to keep our hands to ourselves, to keep our fingers away from the mouth and nose, and to insist on facilities for the thorough cleansing of hands before eating.

One of the means of conveying infection is by the use in common of the same utensils or articles. Cups, plates and towels, for example, serve as instruments for indirect contact between the sick and the well. This is true in the home; it may be true in the outer world in hotels and restaurants. No one would care to use another person's toothbrush; why, then, should you be willing to use his cup or wipe your face and lips on his towel?

Every one of these common practices is a potential risk of infection. It does not matter that they are supported by centuries of usage; they imply health risks. It is every man's duty to himself to educate himself in these fundamental principles of hygiene. When this shall be done the power of infection will be broken, and diseases of the communicable kind will be measurably better under control.

Donald B. Armstrong, M. D.

HORACE FLETCHER.

The news of the death of Horace Fletcher at Copenhagen makes it opportune to recall his teaching and estimate his influence. He had reached the age of seventy. During the recent stirring years we had heard less than formerly of his peculiar doctrines, but he had been earnestly engaged in philanthropic work abroad. Ten years ago he was much before the American public, a persuasive writer and a lecturer of singular charm. The members of his audiences invariably became enthusiastic disciples. It is necessary to add that they generally fell away by degrees and it may be doubted whether he has left any follower as uncompromising as himself.

Mr. Fletcher was not a rigorously scientific man but he was in touch with Doctor Chittenden, Doctor Benedict, and other leading experts in the field of nutrition. At forty-five years he found himself overweight, short of breath, and otherwise in poor condition. He was rejected by an insurance company. In his quest for health he hit upon the system which came to be known as Fletcherism. This was merely prolonged mastication, a conscientious effort to postpone swallowing as long as possible. An unsympathetic critic would have described it as dawdling over a meal until all interest in food was exhausted. But the eloquent advocate of this practice found new and delicate flavors in the attenuated mixtures which he held in his mouth and described himself as a "modern epicure."

Under the regimen Mr. Fletcher became a remarkably strong and active man for his years. At sixty he outdid college athletes in gymnasium tests of endurance; he went on long tramps and climbed mountains with the vigor of youth. He had considerably reduced his weight and was living upon a much smaller ration than formerly. There is nothing surprising in this simple fact, but it is of interest that he did not report the restless craving, faintness, headache, and malaise usually experienced by those who keep down their weight by careful restriction. The curtailing in his case was not deliberate, but the unconscious result of his protracted meals.

It is not easy to be sure how great a saving Mr. Fletcher effected in his total food allowance, but it was entirely clear that he soon came to have quite different tastes from his earlier ones. Professing to be guided solely by inclination and exerting his will only in long continued chewing he found himself a vegetarian. He always said that he should eat meat if he felt moved to do so but the desire did not return. He made a sparing use of eggs and legumes so that his diet illustrated what may be termed a low protein type. At one time he subsisted almost altogether upon grapefruit, baked potato with cream, and corn muffins—not an unattractive bill of fare.

The theory commonly advanced to account for the demonstrated efficiency of Mr. Fletcher's nervous and muscular equipment is somewhat as follows. He made the most of salivary digestion. His food passed to the stomach in a finely divided condi-

tion and was particularly well cared for. It was absorbed rapidly, leaving the least possible residue and limiting intestinal decomposition. His system was exceptionally free from poisons referable to this source. His remarkable endurance was due to the fact that he could begin any trial without a handicap of this nature which is perhaps the rule rather than the exception. Whether this reasoning is sound or not the connection between a very frugal diet with no more protein than necessary and a rare power to resist fatigue has seemed to be established.

Eighty years ago a considerable impression was made upon Americans by a man whose teachings coincided at many points with those of Horace Fletcher. This was Sylvester Graham whose name is still familiar because of its association with coarse, unbolted flour. Like his successor he was an able writer and speaker and mustered a considerable following. He also was a vegetarian and recommended a diet limited in amount and variety, to be taken without stimulants or strong flavoring principles, and to be eaten "slowly and cheerfully." All this is in close agreement with the more recent advice.

Graham taught that food-products should not be too carefully refined. He thought that processes of this kind might lead to the exclusion from the ration of substances indispensable to health. In this belief he anticipated in a remarkable way certain views which in our time have come to have abundant scientific support. Mr. Fletcher did not particularly urge the use of unrefined foods or the deliberate effort to have a large quantity of husks and resistant fibre in the diet. He advised the implicit following of appetite. The Graham system had a laxative reaction while the Fletcher régime was extremely constipating.

No doubt one of the chief reasons why the average Fletcherite tends to backslide is the want of time to carry out the program. An illustration in *Life* once showed a placid gentleman of this persuasion seated alone at a long banquet table. The other guests had gone, leaving their empty glasses and cigar butts at their places. The solitary diner was saying to the faithful waiter, "Now you may bring me the fish." Mr. Fletcher would have had families spend two hours at the midday meal. Conflicting engagements would often break in upon such a schedule. The word "muncheon" which he coined is very expressive. It is easy to caricature such a program, but we can hardly question the assertion that we habitually err in the opposite direction, eating hastily with minds distracted and spurring jaded appetites with highly seasoned dishes.

PERCY G. STILES, PH. D.

PUBLIC HEALTH BILLS BEFORE CONGRESS.

Two bills have recently been pending before Congress dealing with rural hygiene.

The first of these, H. R. 12634, was introduced by Congressman Jeanette Rankin, and proposes to create state boards of maternity and infant welfare. These boards are to consist of three members each, one of whom shall be the state health officer. A Federal subsidy is contemplated of $10,000 to each state which appropriates at least an equal amount. The supervision of the state boards and distribution of the funds to the states is to fall to the lot of the Department of Labor which would doubtless delegate the work to the Children's Bureau.

A second bill, H. R. 14185, was introduced by Congressman Lever. This bill proposes to carry out a somewhat broader rural hygiene program through the agency of the existing state health departments. A Federal subsidy is proposed, to be distributed through the medium of the Treasury Department, Bureau of the Public Health Service.

The Executive Committee of the American Public Health Association has endorsed the Lever Bill. Further, while it expressed approval of the aims of the Rankin Bill, the Committee deplored the creation of a new state agency for carrying out the objects of the Bill.

With reference to the Rankin Bill, President Frankel of the Association and Dr. S. Josephine Baker of the New York City Board of Health appeared at the hearing in Washington and presented the views of their respective constituents. It was urged that the Bill be amended so as to obviate the creation of new state departments. This is in the interests of coördination and opposed to division of health functions among different departments. The Committee reported the Bill favorably to the House.

The Lever Bill was referred some time ago to the Committee on Agriculture. In this it is proposed that the Secretary of the Treasury, through the Public Health Service, be authorized to coöperate with the states through their respective state boards of health in inaugurating and carrying on rural health work. A section of the Act defines "rural" to be a region with a maximum of 5,000 of population in a town or district.

There is the proviso that no payments shall be made under the Act unless an equal sum has been appropriated for the same fiscal year by the legislature of the state and that any state benefiting under the Act shall submit to the government each year through the State Board of Health a plan of proposed rural health work. The Act establishes under the Public Health Service a division of rural sanitation. Coöperation with the Department of Agriculture of the United States is made necessary. The Secretary of the Treasury shall establish such regulations covering the conduct of rural health work and the expenditure of moneys apportioned as may seem reasonable to him and each state board of health shall submit annually to the Secretary of the Treasury a complete report of the expenditures and the work accomplished for the year. The short title of this Act is to be "Rural Health Act." It is worthy of notice that although the Executive Committee of the American Public Health Association voted to endorse the Lever Bill, one member dissented: namely, Dr. W. C. Woodward, health commissioner of Boston. He objects not so much to the promotion of rural hygiene, as to the support of this work at the expense of the cities. His objections are based on careful thought and in order that the members of the Association may have the benefit of all considerations in the matter, his views are set forth in a communication on another page of this issue. H.

"INDIRECT CONTACT," INSTEAD OF "DIRECT."

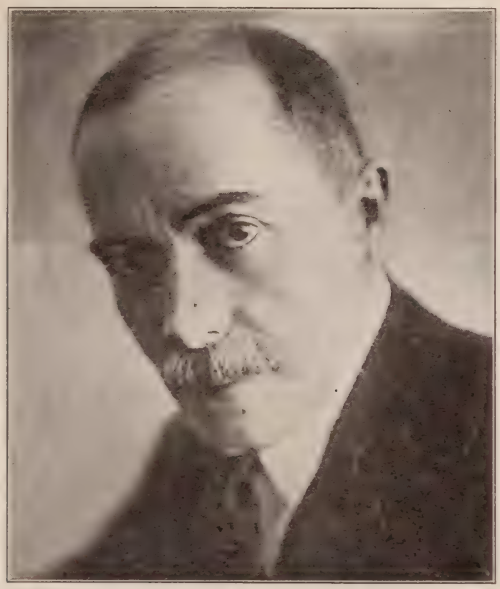
In the January JOURNAL—page 25, et seq.—an absurd misprint succeeded in getting past the printers and the proofreaders in the office. It is important to call attention to it since the bearing of the article by Messrs. Lynch and Cumming might be misunderstood. The title of the article should have read, "The Distribution of Influenza by *Indirect* Contact—Hands and Eating Untensils," and the running titles on succeeding pages should read "Influenza by Indirect Contact." These titles in the JOURNAL were printed "Direct," and till one had begun reading the article would be seriously misleading.

DR. LIVINGSTON FARRAND.

The honors that have been conferred on Dr. Livingston Farrand both here and abroad are of a nature to bring satisfaction to every American heart, being recognition of the highest character for splendid achievements. His appointment by President Wilson to be chairman of the Central Committee of the American Red Cross is a well-merited honor and an acknowledgment of his leadership in the work of public health. Henry P. Davison, chairman of the Red Cross War Council, on whose suggestion President Wilson made the appointment, speaks of him, characterizing him as bringing into his new office a unique combination of qualities, and refers in a public statement to his work in France which has put American energy and initiative behind the attractive native methods of presentation in most important lines of public health education. President Vincent of the International Health Board, in a recent address in Boston, emphasized this praise in an outline of the great movement for the saving of infants and the war against tuberculosis which, together with Professor Gunn, Doctor Farrand has organized in France.

Doctor Farrand, New Jersey born, and with degrees from Princeton of A. B. and A. M., and from the College of Physicians and Surgeons (Columbia University) of M. D., has received honorary degrees, LL. D. from Colorado College and the University of Denver. He studied abroad, at Cambridge and Berlin; became a teacher in Columbia University from 1893 till 1914 and president of the University of Colorado in 1914 and almost from the beginning of his career was active in health work, being executive secretary of the National Association for Study and Prevention of Tuberculosis for a decade beginning in 1905. It was towards the close of this term that his

interests began in the American Public Health Association of which he has been a member since 1910. He was treasurer from 1912 till 1914 and in the year first named was appointed editor of the JOURNAL, with Professor Gunn for managing editor. It was at this time that the JOURNAL was published in New York. In accepting the



DR. LIVINGSTON FARRAND

position of president of the University of Colorado, Doctor Farrand was obliged to discontinue some of his activities in the East. He resigned from both offices in the Association and his mantle fell on Professor Gunn, then and till now a skilful and energetic co-worker. In 1917, Doctor Farrand was selected to head the anti-tuberculosis work in France under the combined support of the Red Cross, the International Health Board and the French Government. In this his constant aider and assistant was Professor Gunn, who remains in France carrying on the good works there established.

The JOURNAL is indebted to the *Boston Transcript* for the courtesy of the use of the picture of Doctor Farrand here presented.

ON TO NEW ORLEANS.

For the New Orleans meeting in October a central committee of the American Public Health Association was organized late in January, which has gone at once to the discussing of plans for the meeting. W. H. Robin, M. D., head of the New Orleans Health Department, is chairman; Oscar Dowling, M. D., chairman of the State Board, and W. S. Leathers, M. D., Health Officer of Jackson, vice-chairmen; F. R. Gomila, M. D., secretary, and H. E. Bernadas, M. D., treasurer. The other members of the committee are Hon. Martin Behrman, Mayor of New Orleans; W. H. Seeman, M. D., state and city bacteriologist; W. H. Knolle, M. D., president of State Medical Society; Paul J. Gelpi, M. D., ex-president of New Orleans Parish Medical Society, and J. J. Wymer, M. D., acting medical supervisor of schools. Mr. Thomas J. Hill, of the Association of Commerce, attended the meeting and assured the committee of the coöperation of the business men of the city.

Dr. Henry Mitchell, formerly secretary of the State Board of Health of New Jersey and for a long time a resident of Asbury Park, died at his winter home, Daytonia Beach, Fla., on Friday, January 31, in his seventy-third year. He was president of the American Public Health Association in 1899. Biographical notice will follow.

PROCEEDINGS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

EXECUTIVE COMMITTEE.

Abstract of Minutes of Meeting in New York City, January 18, 1919.

President Frankel in the chair with six members in attendance. Doctor Evans, as chairman of the central committee of the Chicago Convention made a financial report showing total receipts not including exhibits, of $3,000, and expenses of approximately $1,400. He tendered in behalf of the Chicago Committee a check for $1,619.20. The Executive Committee extended to Doctor Evans and the Chicago Committee a hearty vote of thanks.

It was voted that the President and Secretary be authorized to establish an American Public Health Association News Letter. This is to be a monthly periodical, of four pages about nine inches by twelve, to be issued between the numbers of the JOURNAL and to be sent to all members of the Association. It is intended to present in it the lighter phases of Association life, comment on the movements of the members, minor matters in health administration in the different localities in the country, newsy items that are of transient interest, and the like, with the purpose of getting the members better acquainted one with another. The first issue will probably be about March 20.

The question of field secretaryship was discussed, it having been suggested that such an officer be appointed, to foster better acquaintanceship among members and on the part of the members with the objects of the Association. President Frankel expressed his views to the effect that instead of appointing such an officer at this time, it would be better to strengthen the resources of the Secretary's office. An increase of personnel would enable the shifting of details to properly qualified assistants, leaving the Secretary free to undertake the more important activities which properly devolve upon him. With such increase, the possibility of coöperation with state health societies and the bringing into greater activity of the directors of the American Public Health Association, two important steps in the desired direction will have been taken.

It was voted to increase the facilities of the Secretary's office and to undertake the development of work in the different states.

Doctor Evans presented suggestions that the American Public Health Association assist state health officers in obtaining proper legislation, but it was voted that while the Committee endorses the principle, it is probably inexpedient under existing conditions of the finances of the Association to undertake such work on any extended scale. A further vote authorized that communications be sent to Surgeon-General Blue and to Doctor Montizambert, expressing the desire of the Association to coöperate with state, provincial and municipal boards to whatever extent it can, with a view towards assisting them to obtain proper legislation.

The President of the Association pointed out the desirability of preparing model legislation for cities. It was further pointed out that on account of the amount of work that would devolve upon a committee for this, the Secretary thereof be accorded an honorarium. It was voted that the Chair appoint a committee on model legislation.

The Secretary reported a conference with the editor of a proposed new periodical on Industrial Hygiene, with which the JOURNAL might make some desirable affiliation. It was voted that the Secretary, Dr. W. C. Woodward and Dr. M. J. Rosenau be appointed a committee to act on the matter.

The Chairman reported to the Committee that House Bill No. 12,634 (Senate, 4,782) had been introduced by Congressman Jeanette Rankin, proposing Federal subsidy to new state departments which would be created for promoting rural hygiene of infancy and maternity.

Voted: That the Executive Committee of the American Public Health Association endorses the principle of such public health development but that it deplores the creation of a new state public health agency, in view of the existing state health departments. The following committee was appointed to take the matter up in Washington: Doctor Frankel, Doctor Evans, and Doctor Hurty.

Voted: That a copy of the proposed Rankin Bill be sent to state health officers together with an explanatory letter.

The Secretary reported that he was actively preparing health material for the fraternal insurance bulletins and that this would hereafter be sent monthly in partial consideration of the insurance corporate memberships. (The first instalment was distributed February 14.) He was authorized by the Executive Committee to proceed with this work and to canvass labor organizations and industrial organizations with a view to possibly furnishing them with similar material.

Voted: That the officers be authorized to conduct a campaign for sustaining memberships.

The President next spoke concerning the coördination of national health societies along the lines indicated by Doctor Vincent in his address.

Voted: That the President call a conference of the largest national health organizations with a view of formulating a basis of coördination, this conference to be informal and preliminary to a larger conference to be held early in June at the time of the meetings of the American Medical Association at Atlantic City, or of the National Conference of Social Workers.

The President, Doctor Evans, and the Secretary were appointed delegates to the first conference.

Voted: That the Committee endorse the plan of having state organizations on child hygiene, social hygiene, tuberculosis, and public health in general, meet at the same time as a step toward coördination.

Doctor Evans spoke concerning the proposed state health societies, recommending the bringing together of the special state societies either by federation or amalgamation, and advocating the creation of a central state health council.

On the part of the American Public Health Association he indicated the necessity of issuing membership certificates to members of the state branches, of organizing a section on personal hygiene with state branches, and of soon producing the popular health journal to serve as a connecting link between members of the state societies and the national Association.

Voted: That a draft of a model constitution for state health societies be presented to the Executive Committee, by Doctor Bryce and Doctor Evans, giving minimum requirements, and that a vote concerning this be taken by mail.

The annual meeting date proposed by the New Orleans Committee, of October 6–9, was accepted tentatively, being subject to change after a conference of Doctor Frankel with the New Orleans Committee about April 1. The idea was endorsed of a conference of governors and mayors on malaria with a view to stimulating the initiation of an antimalarial program in the South.

It was voted to invite the Rockefeller Foundation to coöperate closely with the Association along these lines.

Voted: That the Executive Committee instruct the Secretary to send a cordial invitation to the officers of the societies and suggest that Doctor Dowling and the governor of Louisiana supplement these invitations.

Voted: That the Program Committee for the New Orleans meeting be instructed to select a group of men to present a tentative program for a personal hygiene conference with a view to determining whether the formation of a section on personal hygiene be warranted.

Voted: That Dr. J. N. Hurty, Dr. F. L. Hoffman, Dr. C. V. Craster, and Dr. J. A. Hayne, be appointed a committee to confer with the government authorities in furtherance of the aims of the resolution passed by the Association advocating that the army cantonments after abandonment be employed for public health purposes as tuberculosis hospitals, etc. (This resolution was published in the American Journal of Public Health.)

Voted: That the Committee on Influenza Statistics be authorized to correspond with the national and international statistical and other public health societies with a view to making an international survey of the pandemic of influenza.

The Secretary presented tentatively a plan for a copy and cut service for the health bulletins of state health departments. The question was referred to the Secretary with power to act.

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Proceedings of the Forty-Sixth Annual Meeting at Chicago, Ill., December 8–12, 1918.

II.*

General Sessions.

The First General Session of the Forty-Sixth Annual Meeting of the American Public Health Association was called to order by the President, Dr. Charles J. Hastings of Toronto, in the banquet hall of Hotel Morrison, Chicago, on Monday, December 9, 1918, at eight o'clock.

Letters were read by Dr. Peter H. Bryce of Ottawa, Canada, from Mexican and South American health officials.

The President introduced Dr. W. A. Pusey of Chicago who in behalf of the Chicago Medical Society welcomed the Association to Chicago. In voicing a cordial greeting Doctor Pusey called attention to the many attractive features of the western metropolis.

Dr. Arthur R. Reynolds of Chicago, who assumed the chair, in a brief introductory speech which told of the unity of nations against German autocracy, called upon a subject of Great Britain, a son of the Dominion of Canada, the President of the Associa-

*For Part I, including the Constitution, Resolutions and Influenza Discussions, see February Journal, pp. 130 *et. seq.*

tion, Dr. Charles J. Hastings, for his formal presidential address.

(The address of President Hastings has already been presented in the JOURNAL.)

Doctor Bryce spoke of the importance of a propaganda of public health, asserted that in this address there was the foundation of broad principles in every way fitted to carry out the work of the great Association. Doctor Bryce moved that the address of the President be referred to the Executive Committee with instructions that it be printed.

Next in order came two items of business,—the report on the amendments to the Constitution, by Dr. W. A. Evans of Chicago, and the appointment of the Committee on Resolutions, consisting of Doctor Bryce, Dr. Guilford H. Sumner of Des Moines, Iowa, and Dr. J. N. McCormack, Bowling Green, Ky. (The amended Constitution appears in the February issue together with the Resolutions as adopted.)

Following the formal session there was a reception tendered to President and Mrs. Hastings.

The Second General Session met in the banquet hall of Hotel Morrison on Tuesday, December 10, and was called to order at two o'clock by President Hastings, who introduced Surgeon-General Rupert Blue of Washington, the first speaker of the afternoon. (General Blue's paper was entitled "The Programme of the United States Public Health Service," and is to be found in the February issue of the JOURNAL.)

The second speaker of the afternoon was Col. V. C. Vaughan, M. C., of Washington, whose subject was "The Health of the Nation." (It is the intention of the JOURNAL to present an abstract of Colonel Vaughan's address at some later time.)

The successive papers at this session were: "The Future of the American Public Health Association," by Dr. Lee K. Frankel of New York City (see February issue of the JOURNAL); "The Future State Policy in Relation to Health and Welfare," by Dr. Frederick L. Hoffman of Newark, N. J. (presented in this issue); "School Hygiene a National Problem," by Dr. J. A. Nydegger, U. S. P. H. S., Baltimore, Md., who urged the need of a section on school hygiene in the Association, and "A National Programme for Physical Education," by Dr. W. S. Small, Bureau of Education, Washington, D. C. (printed in the November number of the JOURNAL).

In the discussion following these papers Dr. Milbank Johnson of Los Angeles spoke with reference to the amount various communities are spending on their public health. The communities will spend all that is necessary on public health, provided they think they can get value received. He spoke of the necessity of keeping the health administration out of the hands of politicians. He called attention to the fact that the war had emphasized the value of sanitation and that a rare opportunity exists in the thousands of men trained in this specialty who are being demobilized. He spoke of the necessity of casting aside in the future the narrow-minded, sectarian health organization of the past and in a "pull-together" spirit agreeing upon a proper form of health administration.

In discussing Doctor Nydegger's paper on School Hygiene, Dr. R. W. Corwin of Pueblo, Col., spoke of the trial of the unit school building in his state which has been found to be the best. This form, which is a single room in a single building, is not practicable in the city, but may be used in the country. Doctor Corwin advocates lighting from at least three sides and asserted that if all four sides of the building could be utilized it is still better. So far as cross lighting is concerned, he finds that it can be obviated by illumination from near the ceiling and spoke particularly of one building, where through poverty the people placed half of their school house below ground and built only the half above ground. They were, of course, obliged to light the building from the upper half of the room, and they found it worked admirably. He asserted also that window ventilation has been found by experts to be better than artificial cross ventilation. Doctor Corwin concluded his discussion with a reference to oral conditions of school children, and noted the large number of pupils with defective teeth.

In the discussion of the paper on Physical Education, Doctor Talbor of Fort Wayne, Ind., spoke of his experience as a member of one of the draft boards. He said that by that board more than five hundred men were examined for the purpose of securing one hundred and forty-three. He said, however, that these matters should be considered in the light of their environment; for example, with reference to the limit in height, a man under size may have a good mind and he may be just as available for his country as if he were of the prescribed height. He noted that the war has caused important modifications in what were formerly strict limits.

Dr. W. E. Moore of Sioux Falls, S. D., said that his board examined 1,600 candidates carefully and critically and he found that if he had hewed to the line he would have rejected about 60 per cent. He noted that there are more defects among rural boys than among those in the cities.

In closing the discussion, Doctor Small warned his audience against the acceptance of all kinds of crude statistics. He claimed that so far as the draft figures show anything with reference to the relative physical condition of the country boy and the city

boy, they show no difference. He called attention to the fact that the studies of former years on school children in the country were almost invariably made in districts that were famously bad, and had no controls in districts where conditions were known to be good.

The Third General Session of the Association met in the banquet hall at Hotel Morrison Tuesday, December 10, in the evening, President Hastings in the chair. The session was devoted to the organization of forces against influenza, and an abstract of it finds place in the February JOURNAL among the Influenza Discussions. The two regular papers included "The Value of Prophylactic Measures," by Dr. Hermann M. Biggs of Albany, N. Y., which in his absence was read by Dr. Matthias Nicoll, Jr., Albany, who first presented some opinions of his own, and the paper by Lynch and Cumming on "Distribution of Influenza by Indirect Contact—Hands and Eating Utensils."* An interesting report of the work of the Illinois Influenza Commission (see January issue) was the third paper of the evening which was filled with discussions of the general subject of influenza.

The business of the session included a vote that the section officers be instructed to close all section programmes on Wednesday so that Thursday could be left open for the discussion of influenza and that the Chair appoint a committee to recommend nominations for the seven members of the Board of Directors. This committee comprised Doctors Woodward, Chairman, Sawyer, Hurty, and Bryce. The Nominating Committee in its report recommended the following candidates, with terms expiring in 1921: F. L. Hoffman, LL. D., Newark, N. J.; J. T. Black, M. D., New London, Conn.; G. H. Sumner, M. D., Des Moines, Iowa; A. J. McLaughlin, M. D., Washington, D. C.; and C. W. Dowling, M. D., New Orleans, La. The following were nominated to fill the unexpired terms of Doctors Caverley and Landis, deceased, whose terms expire in 1920: W. H. Kellogg, M. D., San Francisco, Cal., and S. J. Crumbine, M. D., Topeka, Kans. These nominees were unanimously elected to the Board of Directors.

The Fourth General Session of the American Public Health Association met in joint session with the Chicago Medical Society in the rooms of the latter in the Marshall Field Annex, on Wednesday evening, December 11, and was called to order by President Pusey of the latter body, at eight o'clock. After a few preliminary remarks, he yielded the chair to President Hastings.

Doctor Hastings commented appreciably on the wonderful coöperation of the members of the medical profession with other workers. "I do not know of any other organization, although probably the ministers should be excepted, who would be willing to join hands with an organization that is intended to suicide their means of livelihood," he said. "The medical profession, however, appreciates the fact that the highest and noblest aim is not the curing of disease, but its prevention."

Doctor Hastings introduced Dr. C. M. Hincks, who presented his address on "Mental Hygiene."

The President commented on this paper as presenting lucidly a sadly neglected phase of preventive medicine. "We realize the fact now," he said, "that in a vast majority of cases the men who are dealt with in our asylums and cared for in our prisons should be dealt with by medical authorities and not police magistrates, and should be cared for in our hospitals. As we progress in civilization, and realize our responsibility to those less fortunate than ourselves, we find that some of the wisest men and best authorities in the world have said it is very difficult to determine just where sanity ends and insanity begins. We should hold a great deal of sympathy for the man who is a little beyond that line which many of us so closely approach."

On account of a slight indisposition on the part of Doctor Bishop, his paper on "Narcotic Drug Addiction" was read by Doctor Pease. Dr. Charles E. Terry of New York City supplemented the paper by a brief discussion.

The next paper of the evening was "Serum Treatment of Influenza and Pneumonia," presented by Dr. Frank W. Hartman, of Washington, D. C. An abstract of Doctor Hartman's paper is presented in the February JOURNAL, page 136, together with the discussions by Doctor Pietrowicz, Doctor Bundesen, Doctor Maloy, Lieutenant Melnikoff, and Doctor Tonney. Other speakers presenting impromptu discussions were Dr. A. A. Goldsmith, Dr. John D. Robertson, Dr. James S. Boyers, Dr. A. C. Hanney, and Doctor Rogers.

In returning the meeting again to the chairmanship of Doctor Pusey, President Hastings took occasion to thank the Chicago Medical Society for its courtesies and its members for the interesting discussions given by them. Doctor Pusey adjourned the meeting.

On Thursday morning, December 12, the special influenza conference which was arranged during the meetings and did not find place in the formal prearranged programme was called together at Hotel Morrison, with Dr. H. W. Hill in the chair. An abstract of this meeting will be found in the February JOURNAL, page 137.

The Fifth General Session included a luncheon at

*Published in the January Journal. The reader should note, however, an error in the title which reads "Direct Contact", instead of "Indirect Contact."

noon at Hotel Morrison, at the conclusion of which there was a question-box discussion. At this a considerable number of questions of interest to physicians and health authorities were discussed. These will be given place in a future issue of the JOURNAL and probably as the initial feature of a regular Question-Box department.

The Sixth General Session of the Association was called together at Hotel Morrison on Thursday afternoon at two, President Hastings in the chair. Dr. George E. Vincent, President of the Rockefeller Foundation, was the speaker, his address, "Team-Play for Public Health," finding place in the January JOURNAL.

In his words of appreciation President Hastings characterized Doctor Vincent to be omnipotent along the line of organization, administration, and oratory. He commented on the skill with which Doctor Vincent had "concisely sized up the situation" in the American Public Health Association, and said further that the Executive Committee and Board of Directors might have a certain conceit in themselves that they have been thinking along the same lines as President Vincent. "The plan of organization for the new American Public Health Association," he said, "because after the war there is to be a new heaven and a new earth, a new democracy and a new American Public Health Association, was that in organizing these different health societies we should coördinate all the activities under the same lines in the states. We want to establish powerful battalions in every state against the invisible foes of the state."

The Association then turned to regular items of business. The Secretary made note of the vote of the Executive Committee to incorporate the Association. He stated that the following members met in Boston last spring and applied for a charter under the laws of Massachusetts: Sedgwick, Whipple, Kelley, Slacker, Turner, Thompson, and the Secretary. The Secretary continued, stating that at a meeting of the Board of Directors the day before, this charter was presented in behalf of the petitioners to the Association and in order to incorporate this Association only the formal acceptance of the charter by the Association is necessary. It was voted that the American Public Health Association accept this charter as a corporation under the laws of Massachusetts.

Through its Chairman, Dr. Bryce, the Committee on Necrology reported the death of five members during the past year: Doctor Watson, a former Secretary of the Association; Doctor La Chapelle; Doctor Westbrook, President of the Association in 1895; Doctor Caverley, and Doctor Landis. It was voted that the Secretary convey an expression of the sympathy of the Association to the relatives of these members in the regrettable loss.

Doctor Bryce reported for the Committee on Resolutions. These resolutions as accepted by the Association find place in the February JOURNAL, page 132.

In behalf of the Committee on Milk Standards, Dr. C. E. North presented his report, which includes the standards adopted by New York City and the State of New York, while similar standards have been adopted by Indiana, and by the local government board for the Islands of Great Britain. Dr. North's report will find place in a future issue of the JOURNAL. The Association adopted the report. In commenting on the matter, President Hastings commented on the fact that the reduction in mortality noticeable throughout the continent during the last ten to twenty-five years is attributable more to the safe-guarded conditions of our water and milk than to anything else.

The Secretary reported that a plan had been presented to the Board of Directors in accordance with which the Association will offer to the returned war sanitarians the full service of the Health Employment Bureau. He noted how the great need of public health men has been evidenced by the recent epidemic of influenza. Many men returned from the war with excellent training in sanitary matters and these will be valuable aids in the administration of health departments. He emphasized the desire of the Association to help both the health departments and the sanitarians and requested them both to register in its files.

"The climax has now been reached," said President Hastings in coming to this portion of the exercises, "when I have the extreme pleasure and distinguished honor of installing one of the most capable presidents the Association has ever had. It has been my pleasure to be associated with him intimately during the past twelve months in a business way. I was convinced of the fact of his vision of the possibilities of the Association, his grasp of its details, and his realization of the ways and means by which its activities can be extended. Gentlemen, let me present to you our President for the coming year, my esteemed friend, Dr. Lee K. Frankel."

In his brief address, accepting the responsibilities of the president's office, Doctor Frankel referred to the fact that the Association has been giving for the past year or two the most careful and thoughtful consideration to the very problems raised by President Vincent. He said: "If we are to live up to the vision of public health as it is seen today, we must extend our activities very materially. It is for that reason, we have been attempting to feel the pulse of

public health opinion. We have tried to get in touch with large insurance corporations and with the fraternal orders, because they represent vast elements of the population, and we hope through the machinery they have already established, to bring home the result of popular scientific health to the mass of the people of the United States. We have known of the Red Cross possibilities and have been in touch with them as far as possible. We have now under consideration the attempt to try to reach the great labor organizations of the country in the hope that we may effect coöperation with them as well and through them carry the message for which this Association stands." He went on to say that the Association is not tied down by any institutional limits but is a fluid, mobile organization that can adapt its policy and plans as such change is required. "We have no axe to grind," he said. "We are not interested in any particular disease. As health officers and as representatives of the public, we are interested in one thing only; that is, in public health."

Doctor Hastings presented the newly elected officers to the meeting and declared these officers to be all duly installed.

For the concluding item of the meeting Doctor Bryce presented the following motion: "That the Association requests the Executive Committee to consider at once the matter of getting in touch with other public health associations with a view to coördinating and combining their activities in the interest of efficiency and economy in all matters relating to the public health." This resolution was adopted. The convention then adjourned.

REPORT OF COMMITTEE ON RETAIL DISTRIBUTION AND MARKETING TO FOOD AND DRUG SECTION, AMERICAN PUBLIC HEALTH ASSOCIATION, AT CHICAGO, ILL., DECEMBER 10, 1918.

Your Committee on Retail Distribution and Marketing submits the following report and recommendations:

1. The world-wide scarcity of food threatens an alarming amount of malnutrition. The Committee urges again the importance of developing as a health measure every possible means of eliminating waste and costs in the distribution of foods in order that rich and poor may share equitably. Many wasteful practices exist, due to commercial trade rivalry and badly coördinated methods of transportation, which the American Public Health Association should use every effort to eliminate. This is not a problem which is of concern to business organizations alone so that the American Public Health Association should take measures to have it treated in the light of those larger aspects which affect the well-being of the general public.

2. The change in the public attitude towards cold storage has already been pointed out to this Association. This Committee is agreed that the efforts which are being made at the present time to improve the conditions of cold storage from the point of production to the point when food is ready to leave the cold storage warehouse need to be supplemented by improved processes of distribution and marketing and especially by the education of the dealer and consumer as to proper methods of caring for cold storage products on removal from the warehouse and in the place of consumption.

3. The close of the war will undoubtedly retard and may even end the movement for Public National Kitchens, but the development and increase of private agencies for the preparation and distribution of cooked food, such as restaurants, delicatessen shops and bakeries will continue and will need still more an effective supervision and regulation from the hygienic point of view. In England, at the end of August, there were 623 national or voluntary kitchens and new plans were on foot for 185 more. Many had restaurants attached and approximately one million portions of food were sold daily. The results of this movement were, in brief, improvement in the habits of the community in the matter of feeding, elimination of waste, economy in use of food, provision of an adequate supply of food at low price and wholesome food for working classes in place of makeshift meals. The release of many women from the arduousness of domestic life enabled them to carry out work of national importance. While it may be expected that most of the women engaged in war work in this country will return to domestic life, it is also to be hoped that they will not again take up without radical modification the domestic preparation of food—a so-called "vestigial function" of the home—with all its waste of labor, material and fuel even when conducted by skilled workers. Such substitute methods as have been introduced in this country should have much more strict supervision from the hygienic point of view than has heretofore prevailed. Closer sanitary inspection of premises, utensils and processes and more rigid health examination of food handlers should be enforced in all factories engaged in the preparation of food and in all places where food is sold or served.

4. While recognizing the importance of home canning and preserving as a war measure your Committee would urge that this industry be resumed again in factories where sanitary conditions may be enforced and where there may be return to increasingly higher standards as to skill in technique, wages, hours and health of workers and hygienic environment. Your Committee would also urge the devel-

opment of methods of dehydration on a commercial basis. This should eliminate the cost of transporting and marketing large quantities of water, as well as the labor of cleansing and paring fruits and vegetables, often with inadequate equipment, in the home; greatly reduce the amount of space needed for storage, not only in markets but in houses and apartments; and result in the stabilization of agriculture, the conservation of that large proportion of fruits and vegetables which under present conditions never reach the consumer, and make possible a great improvement in dietetic conditions. Such a policy does not overlook the importance of retaining the preparation of food in the individual home whenever it can serve in the education of the young or conserve food which would otherwise go to waste, or be an actual pecuniary gain where the family income is so small as to permit of no free choice. It is, of course, to be understood that the energy released from technical and mechanical processes shall not be squandered, but shall be directed toward meeting those responsibilities of the home—the care of the child, the social values of the home and the civic relationships of the family—which assume new importance in the light of the tremendous changes which the world is undergoing.

MARION TALBOT, *Chairman.*
University of Chicago, Chicago, Ill.

REPORT TO SECTION ON VITAL STATISTICS OF COMMITTEE ON REGISTRATION AFFAIRS, AMERICAN PUBLIC HEALTH ASSOCIATION, AT CHICAGO, ILL., DECEMBER 9, 1918.

Death Registration.—The death registration area now includes 30 states, the District of Columbia, the Territory of Hawaii, and 29 cities in non-registration states, and relates to 77.9 per cent of the population of the United States.

The only additions to this area in 1918 are Illinois, Louisiana, and Oregon, while Tennessee was admitted in 1917 after the report for last year had been made.

Birth Registration.—The birth registration area, which was established in 1915, has been extended until now it includes 20 states and the District of Columbia, representing 53.1 per cent of the total population of the United States. The tests made in the New England states in some instances showed percentages of birth registration just above the standard required, but with the adoption of certain recommendations of the special agents of the Bureau, who conducted the tests, it is expected that birth registration in these states will soon be much more nearly complete. The war has awakened the people as well as the state officials to the necessity of having each and every birth registered.

Special Agents.—Special agents were appointed in Colorado, Connecticut, Indiana, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, New York, Rhode Island, South Carolina, Tennessee, Utah, Vermont, Washington, and Wisconsin, in addition to the six previously appointed. Such appointments have proved of distinct benefit to the Bureau in reducing to a minimum the time taken to obtain additional data on transcripts, and in educating persons reporting to fill in the certificates in detail.

WILLIAM H. DAVIS, *Chairman.*
Chief Statistician, Bureau of the Census,
Washington.

NOTE ON BILL H. R. 14185

In a communication to the Secretary of the American Public Health Association, Dr. W. C. Woodward, a member of the Executive Committee presents what may be taken to be a minority report with reference to the Lever bill—H. R. 14185—now before Congress.

Dr. Woodward writes:

"The enactment of such legislation would, in my judgment, be unwise and prejudicial to the best interests of the United States, from the standpoint of public health and, if I may be permitted to judge with respect to the matter, from statesmanship. Politically it may be expedient.

"The effect of the enactment of this bill would be to take money from the various states of the Union more or less closely in proportion to their relative populations and wealth, and to redistribute it among the states in proportion to their respective populations residing in the country and in towns and villages having a population of 5,000 or less. This is to be done under the guise of improving the health of dwellers in such rural districts.

"It is obvious that the proposition involves the taking of money from cities and towns having populations of more than 5,000 and paying it over for the benefit of rural communities. Manifestly this cannot be justified as a general proposition unless it can be shown that the cities and towns from which money is to be taken are able to meet all of the sanitary and hygienic needs of their own people, and no such showing has ever been made. While the unsatisfactory sanitary and hygienic conditions of many rural communities have been demonstrated, no comparative studies have been made to show that such conditions are in any way worse than are the conditions in our cities and towns, and I venture

the assertion that the conditions in the cities and towns of the United States generally are quite as bad relatively as are those in the so-called rural districts. I know, of course, that plea is frequently made that it is necessary to improve the sanitary conditions of the country in order to safeguard the health of the cities and towns, but the argument is specious, and it must be frankly recognized that the improvement of the health of cities and towns is quite as necessary for the safeguarding of rural communities as the improvement of the sanitary condition of rural communities is for the safeguarding of the health of cities and towns.

"If it had been shown that the backwardness of sanitation and hygiene in country districts and in towns and villages having a population of 5,000 or less was due solely to the poverty of those places, then the taking of money from the supposedly more prosperous sections of the country for the benefit of those destitute portions might be justified on the same principle as that which has justified the appropriation of $100,000,000 for the relief of the starving populations in Europe. It has not been shown, however, that the rural districts generally are destitute, and it is extremely improbable that destitution in rural districts is proportionately greater than destitution in towns and cities. The real reason for the appropriation seems to be not the inability of rural districts to bear this burden, but the simple unwillingness of legislators representing rural districts in state legislatures to enact the legislation that will accomplish the desired end; and it is proposed now through federal law and by draft on the federal treasury to subsidize such legislators and legislatures—it might almost be said bribe them—into the enactment of legislation for the welfare of their own people.

"Not only does the bill now under consideration propose to take money from every city and town having more than 5,000 population and to present it to farmers and to residents of towns and villages having less than 5,000 population, but it proposes further to use this money to force the state legislatures and county and town governments to draw upon their own funds for like purposes, when they would not otherwise do so. And it must be frankly recognized that every such draft upon the state or the county treasury for the benefit of the rural populations means that the resources of the state and county for health work among the people as a whole is correspondingly limited. Even though state or county taxes be increased to meet these special subsidized appropriations, yet the very increase in the state and county taxes will fall upon the population generally and diminish the ability of the state and of the dwellers in towns and cities of more than 5,000 to submit to further taxation for their own benefit.

"The bill is, as I have stated above, in my judgment vicious in the extreme. The very principle underlying it is one that is subversive of the independence of the state, but this principle has probably been too firmly fixed as a matter of federal and state policy to permit discussion. The special farmers' legislation enacted by Congress when it established farm loan banks, when it provided for federal aid for the construction of roads, and when it provided for the maintenance of county agricultural agents at the expense of the federal government, and the special aids to labor, provided through the enactment of the vocational educational bill, have all served to fix the principle of federal subsidies. This, however, does not justify any such federal levy upon state resources generally, but largely at the expense of the North and the East, and the redistribution of the amount thus raised among a limited portion of the population, not shown to be any more destitute nor in greater distress than are the dwellers in cities and the larger towns, and residing chiefly in the South and the West. If the principles of this bill are to be enacted into law the money raised by the federal government should be redistributed among the states in proportion to their population, or else in proportion to their contributions to federal revenues, so that every state may have equal rights as a member of the Union, and so that each state can determine for itself where its most urgent health needs lie, and appropriate accordingly."

Yours very truly,
WILLIAM C. WOODWARD.

Don't Forget—New Orleans—October 6–9

ASSOCIATION NEWS

HELP WANTED

In order to help relieve the shortage of sanitarians, help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Epidemiologist in Michigan city health department. Experience in diagnosis of contagious disease essential. Salary, $2,000. Address N. B. H. No. 189, care of this JOURNAL.

First-class, well-trained man for executive secretary of a Tuberculosis Association in Maryland. Address J. B. H., No. 191, care of this JOURNAL.

Health officer. Salary, $2,700. Address W. C. G., No. 192, care of this JOURNAL.

Laboratory technician in Connecticut Laboratory. Civil Service examination will be held for young women interested. Must be college graduate with three months in bacteriological diagnosis in public health laboratory or in medical college in war work. Salary, $800 per year. Address S. L. A., No. 193, care of this JOURNAL.

Health officer in southern town of between 25,000 and 30,000 inhabitants. Must be a physician. Salary from $2,000 to $2,400 per annum. Address W. D. H., No. 194, care of this JOURNAL.

Water and sewage analyst in Boston Laboratory. Must have good general chemical training and knowledge of the bacteriology of water and sewage, also about a year's experience, preferably in a hygienic laboratory. Salary, $1,500, or according to experience. Address S. W., No. 195, care of this JOURNAL.

Two public health nurses in Maryland. Salary in accordance with qualifications. Address C. J. M., No. 199, care of this JOURNAL.

Public health nurses for rural districts in the South. One or two county positions and a few cotton mill community positions available. For county work nurses must possess initiative, public health training, and must be able to drive a car. Salary $100 and car furnished. Address D. A. R., No. 200, care of this JOURNAL.

NEW MEMBERS.

Elected to Membership in the American Public Health Association during February:

Association for the Prevention of Tuberculosis, Washington, D. C.

Rufus B. Blume, D. V. S., Cincinnati, Ohio, Chief Food Inspector.

James S. Boyers, B. A., M. A., M. D., Decatur, Indiana.

Cora B. Conklin, R. N., New Haven, Conn.

Frederick N. Crawford, B. S., M. S., Middletown, Conn.

George A. Dickinson, M. O. H., Port Hope, Ontario.

C. L. Ferguson, M. D., Cincinnati, Ohio.

Herbert A. Gehring, C. E., East Lansing, Mich.

Dwight F. Johnson, M. D., Newark, N. Y.

Thomas P. B. Jones, New York City.

Wm. A. Julian, Cincinnati, Ohio, Chairman Red Cross Home Service.

Robert W. Knox, A. B., A. M., M. D., F. A. C. S., Houston, Texas.

Bernard J. Kuly, M. D., Chicago, Ill.

Rachel W. Long, M. D., Holdredge, Neb.

D. H. McIntosk, M. D., C. M., Carleton Place, Ont., Medical Officer of Health.

Guy H. McKinstry, Ph. B., M. D., Pittsburgh, Pa.

Midwest Milk Manufacturers Association, Chicago, Ill.

Clarence R. Potteiger, B. S., D. V. M., Camp Meade Md.

Frank P. Righter, M. D., Richmond, Va., Medical Director Atlantic Life Insurance Co.

Sally W. Ruffin, Petersburg, Va.

E. C. Shaw, Akron, Ohio.

James F. Smith, M. Sc., M. D., San Francisco, Cal.

Ernest G. Stillman, M. D., New York City.

Ada S. Stokes, R. N., Cincinnati, Ohio, Supervisor Children's Clinic.

Charles S. Vivian, M. D., Humboldt, Ariz.

Agnes Walker, M. D., San Francisco, Cal.

Ruth West, A. B., Ph. C., M. S., Camp Upton, N. Y.

Thompson F. Wickliffe, M. D., Kinston, N. C., Health Officer.

In the list published in the February JOURNAL, page 146, for Herman Old, Manhattan, Kansas, read Lieut. H. Norman Old, Assistant Sanitary Engineer, U. S. P. H. S., Manhattan, Kansas.

Members of the A. P. H. A. Elected to the Sections:

SANITARY ENGINEERING.

William Herbert Bixby, Brig. Gen., 508 Federal Bldg., Chicago, Ill.
Chas. Raymond Cox, 310 Arcade Bldg., Hagerstown, Md.
R. L. Dobbin, 253 Hunter St., Peterborough, Ont.
O. E. Eckert, State Board of Health, Lansing, Mich.
J. Wm. Fehnel, 703 N. Main St., Bethlehem, Pa.
Myron E. Fuller, 7131 Cresheim Rd., Philadelphia, Pa.
Winfred D. Gerber, 133 W. Washington St., Chicago Ill.
Irwin D. Groak, 725 Monadnock Bldg., Chicago, Ill.
John A. Hunter, Amer. Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.
Charles D. Marx, Leland Stanford Jr. Univ., Stanford Univ., Cal.
John M. Mathers, Health Department, Akron, Ohio.
Paul S. Nice, 312 17th St., Denver, Colo.
L. C. Whittemore, 1216 E. 54th St., Chicago, Ill.

NEW HOME OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.



This picture has a double interest. It shows the office of Secretary Hedrich in the new suite into which the increasing business of the Association has obliged the removal of its headquarters. The assistant is bringing to the secretary the great pile of signed certificates of membership, ready to go forward to the three hundred and twenty-six members who joined at Chicago. Mr. Hedrich looks serious as he views the added responsibility which this "big bunch" entails. Such additions mean, however, that the Association is coming into its own as the great national force in health education, and that it can now begin to undertake some of those plans which have been under consideration the past few years.

BOOKS AND REPORTS REVIEWED

Physiology and Biochemistry in Modern Medicine. *J. J. R. Macleod, M. B., Professor of Physiology, Univ. of Toronto, Toronto, Canada. (Assisted by Roy G. Pearce, B. A., M. D., Cleveland, O., and by others.) St. Louis: The C. V. Mosby Co. Pp. 903. Price, $7.50.*

The purpose of this publication may perhaps best be expressed in the language of the author, who states that "the laboratory courses in physiology are frequently given without any attempt being made to show the student the bearing of the subject in the interpretation of disease, or to train him so that in his later years he may be able to adapt the methods of investigation which he learned in the laboratory, to the study of morbid conditions."

Physical chemistry has revolutionized the aspect of certain phases of internal medicine, and its importance is not yet clearly recognized. Macleod's book embodies the modern principles pertaining to physiology and biochemistry and relates them to routine medicine. It ought to be of great value to the clinical investigator. It is not intended for a regular textbook in physiology or physiological chemistry, but rather for supplementary reference. Certain chapters ordinarily found in the standard textbooks, such as, the physiology of nerve and muscle, of the special senses, and of reproduction have been omitted entirely on account of their limited application in the general fields of medicine and surgery. On the other hand emphasis is laid on other subjects such as acidosis, nephritis, diabetes, the determination of hydrogen-ion concentration, colloid chemistry, etc.

The text comprises nine parts, which deal with the physicochemical basis of physiological processes, the circulating fluids, respiration, digestion, the excretion of urine, metabolism, the ductless glands, and the central nervous system. No one can peruse Part I without being convinced that the author has succeeded well in elucidating a subject which has always been difficult for the clinician to comprehend.

The physician who believes that he can get along well in his practice of medicine without consulting his "Physiology" would be surprised to learn from a closer study of this book how helpful a knowledge of modern physiology really is.

The clinical investigator and research worker will find this book a mine of up-to-the-minute information and as such it can be recommended unqualifiedly to the profession. The text, which is exceptionally well prepared, is accompanied by 233 illustrations, including 11 plates in colors.

Arthur Lederer, M. D.

✠

Clinical Medicine for Nurses. *Paul H. Ringer, A. B., M. D., Member of Staff of the Asheville Mission Hospital, Asheville, N. C., and of Biltmore Hospital, Biltmore, N. C. Philadelphia and London: F. A. Davis Co., illustrated, 1918. Pp. 8+286. Price, $2.*

This book plans to cover material given in lectures on medical diseases by Doctor Ringer to the nurses of the Asheville Mission Hospital. It consists of thirty-four chapters and a good glossary. There is a separate chapter devoted to such subjects as influenza, measles, diphtheria, syphilis and infantile paralysis.

The author does not go deeply into the treatment of disease with the exception of tuberculosis; these lectures are designed to form a basis for the instruction of nurses by physicians who will enlarge upon what has been given and will present their own method of treatment.

In the chapter on tuberculosis of particular interest is the author's account of the history of the disease. The author refers to ancient Babylonian records (B. C. 460–376) which give an intelligent description of tuberculosis. Then follows an account of the advance made in our knowledge of the nature of the disease until in 1882 Robert Koch, health officer in an obscure German town, discovered the tubercle bacillus, and proved conclusively that it was the sole cause of any and every form of tuberculosis. Of special value to the nurse is the author's clear and careful description of the vague and elusive symptoms of incipient tuberculosis, emphasizing the fact that no one symptom is conclusive, that all symptoms are rarely present, but the combination of any three or four is extremely suggestive.

The author discusses in detail the necessary precautions to be observed for the protection of the nurse and of the family of the patient from infection.

Mention should be made of the chapter on influenza which gives an interesting study of an outbreak of this disease in 1888. Hongkong was thought to have been the starting point of an epidemic that within one year visited nearly all parts

of the world. • The great mass of evidence tends to show that the disease is transferred from person to person and, also, that infants and the aged seem less susceptible to infection than others. The symptoms of influenza are well defined.

This book is of great professional value; each subject is treated by the author in a clear and masterly manner. *May Bliss Dickinson, R. N.*

✻

Text-Book of Home Nursing. *Eveleen Harrison. 2nd Edition. New York: The Macmillan Co., 1918. Pp. 193. Price, $1.10.*

This book by Miss Harrison is a valuable one and much needed in many homes. The author has shown skill in making selections from a mass of material and in presenting the essentials. The chapter on the need of making a patient comfortable strikes the keynote of the book. All too rarely the nurse who is expert in carrying out the technical performance of her profession underestimates the value of the personal element. The author has inserted many directions with this point in view in a suggestive and convincing way.

A valuable feature of the book is definite directions to the nurse to so care for herself that she will be well prepared for her days' work even though her nights' rest be broken.

The chapters on Dietics and on Recipes for Invalid Cooking are especially worthy of note. While covering familiar ground the author has clearly and forcibly emphasized the importance of food in sickness. In the chapter on Nursing of Children the directions are especially clear and comprehensive. The treatment of croup is excellent.

This volume is a timely contribution to a subject of universal interest and will be of value not only to the nurse but also as a book of household reference.

May Bliss Dickinson, R. N.

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Healthy Living, Principles of Personal and Community Hygiene. *C. E. A. Winslow, S. B., S. M., Professor of Public Health, Yale Medical School. New York: C. E. Merrill Co. Part I pp. 234. Part II pp. 376.*

The author has succeeded in presenting the principles of personal and public health in a manner which holds the interest of children, while at the same time he has made these two volumes very readable and instructive to older people. This has been accomplished in part by interjecting into the text, stories from the classics which are made to serve as illustrations of points which the author wishes to emphasize.

Analogies and illustrations are skilfully used to bring the facts home to the reader in an impressive way.

It is noticeable that in discussing sources and modes of infection, Professor Winslow gives due weight to the effect of the quantitative factor in the spread of infection, the importance of which is not always sufficiently appreciated by less experienced writers.

There is little one can say in criticism.

On page 164 of the first volume the author states that "the kinds (of microbes) that cause human sickness can live and thrive only in the human body." While this is true in the main, it does not take into account such organisms as cause bovine tuberculosis and anthrax and which are equally capable of causing the same disease in man.

The food costs given on page 80 of Volume I and in the appendix of the second volume, while correct when the book was written, are of little value today except for comparison.

The two volumes are a valuable addition to popular public health literature.

B. P. Rickards, M. D.

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A number of copies of the 1915 annual report of the State Department of Health are still available. Volume III contains many original articles by members of the staff, including the following and other more technical papers:

Schick Reaction in Infants. Henry L. K. Shaw, M. D., and Wm. E. Youland, Jr., M. D.

A Preliminary Inquiry into the Health Needs of Rural People of the State of New York. C. Josephine Durkee.

Reduction of Water-Borne Typhoid Fever. Theodore Horton, C. E.

The Relation of Sewerage Systems to the Prevalence of Typhoid Fever. H. Burdett Cleveland.

A Study of the Application of the Score System to the Sanitary Quality of Public Water Supplies in New York State. Theodore Horton, C. E. and E. Sherman Chase, C. E.

Emergency Chlorine Sterilization Plant for Public Water Supplies. E. Sherman Chase, C. E.

A Simple Method of Pasteurizing a One Quart Bottle of Milk. Ruth Vories.

Persons desiring to receive copies should write at once to the State Department of Health, Albany, N. Y.

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Within a few weeks the *Medical Review of Reviews* (New York) has purchased and consolidated with itself two other periodicals, the *Buffalo Medical Journal* and the *Southern Practitioner*. The *Buffalo Medical Journal*, founded in 1845 by Austin Flint, M. D., was the third oldest periodical in its class in the country and had been looked upon as a fixture in medical literature.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horowitz and Mayo Tolman.

Fellowship for Public Health Men.—The Harvard Medical School, in coöperation with the Boston Dispensary, offers a Fellowship to graduates in medicine who desire to pursue a course of study leading to the Certificate of Public Health in the School for Health Officers, or to the degree of Doctor of Public Health in the Department of Preventive Medicine and Hygiene.

Fellows are required to give about half their time to the treatment and supervision of the sick in clinics or their homes for the Boston Dispensary, and half their time to study or research at the Harvard Medical School. Appointments may be made for one or two years. The stipend is from $750 to $1,000 per year, depending on the details of the arrangement made.

Applications stating previous experience, references, etc., should be made to Dr. Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard Medical School, Boston, Mass., or to Michael M. Davis, Jr., Director of the Boston Dispensary, 25 Bennet Street, Boston.

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Vaccination.—A method of vaccination known as the subdermal method, introduced into the Canadian and British armies, has proved of decided advantage over the endermic method used in the American army.

A drop of vaccine is placed on the arm and the skin merely punctured in an area less than one-eighth of an inch square, three or four such areas about two inches apart being punctured on the left arm of the person vaccinated. As no blood is drawn the method constitutes a great saving since no bandages or dressings are required, nor is there any necessity to wait for the arm to dry. Only fifteen seconds are required for a complete vaccination by this method. In only one case out of every five hundred is any after treatment required.—*Minn. Health Journal*, Oct. 17, 1918. (*M. T.*)

✻

Infection through the Tear Ducts.—The efficacy of the face mask has been brought into serious question by the recent influenza epidemic when many nurses and others contracted the disease in spite of all precautions.

It is well known that in the pneumonic form of bubonic plague the necessity of precautions to protect the eyes as well as the nose and mouth is thoroughly well established. It should be obvious that infection, as mouth or nose spray from a coughing or sneezing patient, may fall directly on the eyes and be carried by the tear ducts to the nose and thence to the throat and mouth. This has been known to occur even in cases of diphtheria. May it not be that the many failures of the face mask can be attributed to infection conveyed in this manner?—*Minn. Health Journal*, Dec. 5, 1918. (*M. T.*)

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Sanatorium Treatment for Tuberculosis.—The home lacks the discipline to carry out the requisite phases of the treatment of tuberculosis, nor can it exercise the precautions necessary for the proper protection of the non-tuberculous associates. The patient nearly always overestimates his strength and, all too frequently, the proximity of business or responsibilities overcome his good intentions for self cure. Even in those cases where the patient gives himself up entirely to rest he frequently cannot obtain the necessary food or the service of a nurse.

The sanatorium on the other hand represents the best care that can be administered by trained specialists. There is no risk involved of infecting relatives and friends. His associates, through the bond of like affliction, are his friends. The patient is away from care and worry and his exercise is carefully regulated to guard against overexertion. The discipline insures the enforcement of the four essentials for cure—rest, good food, freedom from worry and fresh air.—*Minn. Health Journal*, Dec. 5, 1918. (*M. T.*)

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Danger in Rural Schools.—Insanitary and neglected conditions of rural schoolhouses are credited with the failure of 75 per cent of the men who have been rejected from the army upon medical examination according to Dr. J. A. Nydegger of Baltimore. (*M. T.*)

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Robbery De Luxe.—The National Association for the Study and Prevention of Tuberculosis is authority for the statement that not less than $20,000,000 is invested in the business of manufacturing and exploiting fake cures for consumption. It is also estimated that the annual income from these concerns and individuals is not less than $15,000,000. Of this amount, about $5,000,000 is spent for advertising, leaving the tidy sum of $10,000,000 as profit.

As no bottled goods have ever cured consumption, the $15,000,000 represents nothing but blood money robbed from the unfortunate.—*N. C. Health Bulletin*, Oct., 1918. (*M. T.*)

Plans and Notes Regarding Sanitary Devices Used in the War.—In a set of booklets received from the Office of the Chief Surgeon, American Expeditionary Forces, a large number of plans and notes regarding the appliances used to protect the health of the troops, is given. The booklets serve as excellent demonstrations of the care that has been taken to apply all the principles of modern sanitary science and preventive medicine that are known. In the booklet entitled "Sanitation in War," detailed, yet simple plans are shown regarding the following sanitary appliances:—latrine with fly trap; portable fly proof latrine; trench fly proof latrine; feces separator; urinals; incinerator and hot water heater; shower incinerator; feces destructor shed; smokeless feces destructor; horse manure incinerator; garbage separator and grease trap; fly traps; fly proof meat safe; improvised cold storage by permitting water to evaporate from the surface of the container, thus lowering the temperature of the stored food; refrigerator for fixed camp; company field kitchen, camp kitchen; delousing barrel for clothing by the use of steam; bathing establishment, consisting of undressing room; dirty underclothing storeroom, shower room, clean underclothing room, room for ironing and delousing uniforms and dressing room; clothes drier and vapor bath. In addition there are other booklets which show the detailed plans of tents, namely the Bessonneau or French Tent, the Marquee or British tent and the U. S. Hospital Ward Tent. That the war has greatly advanced our knowledge of field sanitation, is made very evident from an examination of the above mentioned plans. (*M. P. H.*)

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Results of Campaign against Venereal Disease in the Army.—The Surgeon-General of the Army has recently issued the results obtained from the campaign for combating venereal diseases. Reports indicate that approximately 85 per cent of the men entering the Army were already infected and that 15 per cent of all cases reported were contracted after enlistment.

Coincident with the introduction of preventive medicine measures, the annual venereal disease rate dropped from 155 cases per 1,000 in 1910 to 83.60 per 1,000 in 1915. These 83.60 were practically all new infections, as, at that time, men infected with venereal diseases were refused admission to the regular Army.

Under the Surgeon-General's program as outlined the annual venereal disease rate per 1,000 in the United States (new infection) has dropped from 83.60 per 1,000 in 1915 to approximately 20 per 1,000 in 1918.—*Social Hygiene Bulletin*, October, 1918. (*D. G.*)

Industrial Sanitation under Federal Health Service.—The United States Public Health Service has created the office of Industrial Sanitation and Medicine, to carry out the terms of a presidential order pertaining to inspections and investigations of industrial hygiene and sanitation in those establishments making war materials. It is also planned to conduct investigations into the mechanical safety of plants manufacturing ordnance material. All the work of the health and sanitation division of the Emergency Fleet Corporation has also been taken over by the Public Health Service.—*Municipal Journal*, November 16, 1918. (*M. P. H.*)

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Tuberculosis and the War.—If the experience of our Allies is to be used as a criterion the soldiers who are sent to tuberculosis sanatoria will leave very soon after their admission. These men desire to get back to their homes and friends, and there, their care, treatment and supervision will devolve upon the local authorities. Then there is a second group of cases to be cared for,—those that have been excluded by the draft boards.

This problem can be met by the establishment of local tuberculosis hospitals and sanatoria and in part by local dispensaries. Each community should provide at least one center for the free medical examination, treatment, advice and instruction of the tuberculous and those living in intimate association with them. In addition, there should be developed a system of home supervision for advice and aid to patients in their homes.—G. J. Nelbach, *Proc. N. Y. State Conference of Mayors*, 1918. (*D. G.*)

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Epidemiologic Studies of Poliomyelitis.—In *Public Health Bulletin* No. 91, Surgeons C. H. Lavinder, A. W. Freeman and W. H. Frost comprehensively review the history of poliomyelitis, and discuss very thoroughly the mass of data collected during the severe epidemic of the disease in 1916 in New York City and the Northeastern United States. The following seem to be some of the essential facts brought out in the report:

In 1840, Heine differentiated poliomyelitis from other forms of paralysis which affected children. This was followed in 1870 by the work of Medin of Sweden, who made clear the symptomatology of the disease. In 1905, Wichman, also of Sweden, studied the epidemiology with particular reference to the mode of transmission, and emphasized the importance of abortive cases and carriers in the dissemination of the virus. Later the disease was produced experimentally in monkeys by Landsteiner, Popper, Flexner, Lewis and others. Flexner and Noguchi also succeeded in growing the virus *in vitro*.

The etiologic factor is definitely a filterable virus which is readily destroyed by heat and also by the usual chemicals. It keeps well in glycerine and in weak phenol. The virus withstands drying and freezing and is highly resistant to external conditions. It has been found in the dust of rooms and has been transmitted experimentally by the biting stable fly and the bed bug. The ordinary house fly is also capable of transmitting the virus, but it serves entirely as a mechanical carrier.

Contrary to early opinion, the virus may attack any motor center in the body, and cause either permanent or temporary injury. Usually there is an acute febrile reaction, with gastro-intestinal disturbances of more or less severity, and indications of meningeal irritation. The disease may occur without paralysis. In fact it occurs frequently in the abortive form without impairment of the motor functions.

The virus has been found in various parts of the body of those dead with the disease. From those who are carriers, or who are ill with the disease or are convalescing, the virus has been found in the nasopharyngeal secretions. The virus may also be obtained from the washings of the rectum of those ill with the disease.

The disease is distributed over the entire world. It seems to be prevalent mostly during the summer and autumn months. Epidemics follow the main routes of travel. The mode of transmission is essentially by direct personal contact. The rate of incidence of the disease is independent of hygienic or economic conditions, or of race and nationality. Children under five are particularly affected. From 50 to 90 per cent of the cases occur among them. It is also true that more males are attacked than females, particularly in the higher age groups. The disease is also more prevalent in rural and semi-rural communities than in urban places. In the rural districts the higher age groups are affected to a larger degree than in the cities. Multiple cases in the same family seem to be rare. The incubation period for the disease appears to be less than one week.

The severest epidemic on record occurred in New York city during 1916. The average case rate for the city from 1911–1915 was 5.35 per 100,000 population. The case rate for 1916 was 185.2 per 100,000 population. (*M. P. H.*)

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Scurvy and the Juices of Vegetables.—Cow's milk possesses distinct properties against scurvy, but these are present in small degree in comparison with other antiscorbutic foodstuffs. Its value in this respect is further reduced after heating or drying. It is therefore advisable to provide some extra antiscorbutic material in the diet of infants nourished upon heated or dried cow's milk.

The value in this particular of various materials that might suitably be included in an infant's diet has been determined by means of experiments with guinea-pigs. Among fresh fruit juices that of the orange is easily the most suitable, and possesses a value about ten times as great as that of fresh grapes. Of the raw vegetable juices examined swede juice proved to be far the most potent, approximating in value to raw orange juice; the juice of carrots was found to be much inferior, and that of beet-roots failed to prevent scurvy in the largest dose (20 cc. daily) that could be administered to the experimental animals.—H. Chick and M. Rhodes. *Lancet*, December 7, 1918, 774. (*D. G.*)

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Prevention of Scurvy.—The antiscorbutic value of the juice of fresh limes as compared experimentally with that of fresh lemons has been found to be distinctly inferior. Volume for volume fresh lime juice possesses a potency of about one fourth that of lemon juice. Preserved lime juice was found useless for prevention.

These experimental studies have been supplemented and confirmed by a historical study of lime juice in connection with human scurvy. At the period when scurvy was eliminated from the British Navy by its agency the term was used to express the juice of lemons, and it was not until the second half of the nineteenth century that the juice of West Indian limes was adopted in the Navy and Mercantile Marine. The history of two Arctic expeditions, that of the "Investigator," 1850, and that of the "Alert" and "Discovery," 1875, has been carefully investigated. The former, supplied with lemon juice, experienced remarkable immunity from scurvy during the first two years of great difficulty and privation; the latter, supplied with lime juice, suffered severely from scurvy at the end of the first winter spent in the Arctic regions.—H. Chick, E. M. Hume and R. F. Skelton. *Lancet*, November 30, 1918, 735. (*D. G.*)

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Food and Scurvy.—In a memorandum on Food and Scurvy issued by the Food (War) Committee of the Royal Society the following points are emphasized:

The vitamine which will prevent scurvy is contained in a number of fresh foods: in largest amount in oranges, lemons, and fresh green vegetables; in considerable amount in roots and tubers, such as swedes, potatoes, etc.; and in small quantities in fresh meat and milk. It is deficient in all dried and preserved foods. It is destroyed by prolonged heating, such as takes place during stewing. Thus

potatoes in stews would be devoid of vitamine, but if boiled rapidly will still contain some quantity. Alkalies rapidly destroy antiscorbutic properties. Soda should therefore not be added to the water in which vegetables are soaked or boiled.

West Indian lime juice, as ordinarily prepared, is useless for the prevention of scurvy. Fresh limes have an antiscorbutic action, but their efficiency is only one fourth that of lemons. Pulses, beans, peas, and lentils in the dried condition have no antiscorbutic properties. If, however, the dried seeds are soaked in water and are allowed to germinate for a short period, one or two days, they develop the antiscorbutic vitamine. At the same time these pulses are also rich in the vitamine which prevents beri-beri and are, moreover, valuable foods.

The antiscorbutic value of fresh meat is very low in comparison with that of fresh vegetables and fruit. If fresh meat is consumed in large quantities, 2 to 4 pounds a day, scurvy will be prevented. Tinned and preserved meat possesses no antiscorbutic value. Frozen meat, while more valuable than preserved meat, must be considered inferior to freshly killed meat in this respect.

The destruction of the antiscorbutic properties depends rather upon the time than the temperature employed. All foods, especially vegetable, should be cooked for as short a time as possible at boiling point. Slow methods of cooking, such as stewing with meat or simmering below boiling point, should be avoided. Potatoes should be plunged into boiling water and the boiling continued for 20 to 30 minutes after the boiling point has again been reached. Frozen meat should be roasted when practicable.—*Lancet*, November 30, 1918, 756.

(*D. G.*)

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Infant Mortality Study in Waterbury, Conn.—The seventh of the series of infant mortality studies being conducted by the Children's Bureau of the U. S. Department of Labor, was made in Waterbury, Conn., from June 1, 1913 to May 31, 1915. Waterbury was selected because the city is in the registration area; because one third of the population is of foreign origin; because at the time, only a small proportion of the married women were engaged in industry; and because the essential industry, the manufacture of brass has not been represented in any of the previous infant mortality rate studies.

The average infant mortality rate from 1910–1914 inclusive was 146.5, the lowest being 134 in 1911, and the highest, 174.1 in 1913. The investigators studied the infant mortality among 2,144 live born infants which occurred during the first year of the study. Of these 263 died in infancy, the infant mortality rate therefore being 122.7. The highest infant mortality rate in any ward was 150.1 and the lowest ward rate was 70.6. The foreign population is composed largely of Italians, Irish and Lithuanians. The infant mortality rate was highest among the Lithuanians, the rate being 207.7 Among the Irish the rate was 184.6. Among the Italians, the rate was 109.9 and among the native Americans the rate was 97.9. It was found that 12.5 per cent of the births were not reported, during the period of investigation, also that 95.7 per cent of the deliveries of native mothers were attended by a physician against 52.2 per cent of the foreign mothers. Midwives were in attendance in 43.4 per cent of the foreign mothers, and in only 3.8 per cent of the native mothers. Although midwives are required to have a license, many were found who were unlicensed. There is no supervision over midwives.

One third of all the infant deaths was due to gastric and intestinal disease. The infant mortality was found to be greater in those homes that had insufficient incomes; where the surroundings were unsanitary and the housing improper; where the food and clothing were unsuitable and insufficient; where medical attention was lacking; and where it was necessary for the mother to be employed. In those families where the income was less than $450 per year, the infant mortality rate was 153. This rate did not drop below 100 until the income exceeded $850. Although the foreign-born families were almost always larger than the native families, their incomes were usually lower. In relation to artificial feeding, it was found that although the percentage of infants of native mothers that were artificially fed was high, yet the infant mortality rate among them was low. But the infant mortality rate among artificially fed infants of foreign mothers was high.—*Children's Bureau Publication No. 29.* (*M. P. H.*)

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Strike a Balance.—What one does after work is more responsible for brain fag and nervous exhaustion than is work itself. The essential thing for efficient well-being is to get a relaxation that really relaxes, that makes you forget the day's cares and cleans your slate for a fresh start tomorrow.

What that recreation is to be must depend on the individual, but it should be about as far removed from what one does in one's working hours as is possible. Find your recreation and then proceed to redeposit in your bank of nervous energy each day what you check out during working hours. Do not overdraw this account or you may soon find yourself a nervous bankrupt.—*N. C. Health Bulletin*, Oct., 1918. (*M. T.*)

Medical Inspection of School Children in Japan.—Japan realized thirty years ago that the health of her people was the main asset of the nation and that her ability to maintain her position among warring countries rested solely in the physical strength of her subjects. Consequently she set about to conserve, strengthen and build up her fighting resources in every way possible and one of her first acts of preparedness for the bloody struggle, which was to be staged some years later was, the inauguration of a complete system for the medical inspection of school children. It may be perhaps that some shrewd observer while studying her school system noticed "that a defective or feeble-minded child in the second grade was an indifferent pupil, but when in the fourth grade such a child became a mere lodger," and realizing that in an attempt to school an individual of that type the country was wasting its funds and the teacher her efforts, and in addition, the education of others was retarded; then the awakened authorities set themselves to the elimination of this waste and the reclamation of this element of defective youthful humanity. How well she succeeded is known to every one, for since that time her history has been a history of progress.—*Florida Public Health Notes.*

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Habits of Anopheles Crucians.—In a carefully conducted study of the habits of *Anopheles crucians* it was observed that this mosquito can subsist in nature in waters containing primarily non-living vegetable matter. As to seasonal distribution it was found that in the locality studied (Montgomery, Ala.) this mosquito appears early in April and continues breeding until late summer and possibly fall. The range of flight was investigated and it was noted that *crucians* was distributed about 7,000 feet from the source in numbers to be of sanitary significance, while from 7,000 to 9,000 feet the mosquitoes recovered were so few as to make the menace at this distance questionable. With regard to the choice of hiding places the great bulk of the specimens were found underneath houses or in stables, pig pens, and sheds.—C. W. Metz, *Public Health Reports*, December 6, 1918, 2156. (*D. G.*)

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Reconstruction of Education.—The following is the program prepared by Frederick Peterson for his address given before the National Education Association at Pittsburgh, July 3, 1918, on "The Reconstruction of the Race."

1. The teachers themselves should be given better conditions for their health and fuller instructions in all that has to do with the laws of health.

2. Every city and country school should be made sanitary and kept so, and the school and its grounds should be as beautiful as possible, not only for the benefit of the teachers and pupils, but as an example to all other citizens who are beginning to use the school more and more as a community center.

3. Every child should be regularly weighed, measured and examined, and a health record kept, which should accompany him throughout his school life. It should be the duty of the authorities to see that the defects of our young citizens are corrected, and disorders of growth and nutrition remedied. As malnutrition is one of the serious conditions, a hot lunch should be made available for every child and every teacher. The health examination should include dental inspection and treatment.

4. Each school should have adequate provision for physical training, gymnasiums, athletic fields, playgrounds, gardens and shops, together with especially qualified instructors in physical training and vocational fields.

5. Finally with the foregoing foundations, there should be a thorough system of instruction in all matters pertaining to health with special emphasis on health problems rather than disease, in physical and mental habits, in personal hygiene, in public health and sanitation, in methods to avoid communicable diseases, in the responsibilities of parenthood, and in all that relates to nutrition and growth, including foods and food values and food habits.—*Journal A. M. A.*, Aug. 17, 1918.

(*M. T.*)

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As You Would Have Done Unto You.—How many can say: I have saved the health and lives of many because I have confined my germs to myself; I have spit with precaution into my handkerchief; likewise I have guarded my mouth and nose in sneezing and coughing and destroyed all my infectious discharges. My lawn, the lawn of my neighbor, and the public highway have not been my spitting grounds, nor have I sneezed and coughed in the face of my neighbor. In so doing I have deprived myself of no pleasure which I otherwise would have had. I have sacrificed nothing but have saved many from colds, la grippe, influenza and consumption.—*Minn. Health Journal*, Dec. 5, 1918.

(*M. T.*)

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Importance of Prenatal Care.—Results of prenatal service in New York and Boston for 1914 and 1915 indicate that prenatal nursing service will reduce infant mortality for babies under one month old 33 per cent and for babies up to one year, 40 per cent. In 1914 68 per cent more babies were saved in wards which had the advantage of prenatal service than in the wards which did not have it. (*M. T.*)

STATE HEALTH NOTES.

Canada.—The first steps were taken early last month towards the organization of a social health program for Canada by the assembling at Ottawa of a most distinguished body of Canadian health ministers, health officers and presidents of public-spirited health societies. One of the resolutions passed at the afternoon session was in favor of the immediate establishment of a federal board of health. Another of the resolutions sets forth what the Canadians deem to be the essential features of the problem of venereal disease as it exists in the country. The elements covered by the resolution include compulsory notification, compulsory treatment, standardized treatment, authority to examine suspected individuals, prevention of quack treatment and quack remedies with their advertisements, and the right of entry of public health authorities. Beyond this the assembly passed a resolution that advocates the amendment of the Criminal Code of Canada, so that a person who is suffering from venereal disease in a communicable form, who knowingly or by culpable negligence communicates such disease to another person, shall be guilty of a criminal offence. Still another resolution suggests that the Dominion government render financial assistance to the provinces in fighting these diseases, and another still advocates the examination of seamen coming within the purview of the Immigration Act. Still another recommendation by this conference was that the government assume the supervision of production of salvarsan and similar remedies.

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Illinois.—The influenza situation in Illinois is now generally under control, although a third epidemic is reported in a number of communities. The type of disease seems to be milder and the death-rate lower than during the months of October, November and December. The impression that children are immune to the disease, which became current early in the epidemic, is now shaken by the fact that in many communities children were afflicted more than adults. The supposed immunity of tuberculous persons has also been open to question since reports have been received from at least one tuberculosis sanatorium in Illinois of the infection of a considerable number of tuberculous persons, with high mortality.

Through the efforts of the Division of Social Hygiene of the State Department of Public Health, large numbers of Illinois pharmacists have agreed to discontinue counter prescribing and the sale of nostrums for the treatment of venereal diseases. This has developed an embarrassing situation in some communities where all of the physicians refuse to treat this type of human ailment. The Department of Public Health is making special effort to induce physicians to coöperate in the state and federal plan by accepting patients of this type.

The State Department of Public Health has just issued an entirely new circular on the "Cause, Prevention and Treatment of Pulmonary Tuberculosis." In addition to the customary information relative to the disease, this circular contains specific information in regard to the out-of-door care of consumptives, and a complete directory of all public and private sanatoria and tuberculosis dispensaries in Illinois.

The Division of Diagnostic Laboratories of the State Department of Health reports a remarkable increase in requests for examination of sputum specimens. This is believed to be due to the respiratory disturbances left in the wake of the influenza epidemic. There has also been noted a very large increase in the number of Wassermann tests, since the ruling by the Department that all such tests will be made in the future without charge, for rich and poor alike.

Never in the history of the State Department of Public Health, has there been so low an incidence of scarlet fever, diphtheria, measles, whooping-cough and chicken-pox throughout the state of Illinois as at the present time. This striking decrease in the contagious diseases of children is attributed to the very general adoption of medical school inspection and the employment of school nurses necessitated through the rules of the State Department of Public Health for all schools that desired to remain open during the recent epidemic of influenza. A very large number of communities have permanently established school inspection and school nursing service as a result of this striking showing.

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Minnesota.—With reference to reporting venereal disease, a professor in the school of medicine of a state university told one of his classes that he would himself never report a case of venereal disease and advised them never to do so.

The executive committee of the medical college unanimously condemned the utterance and stand taken by the professor and despite his high standing, made it plain that they would tolerate no such expression of opinion from one of their staff.

There have been a few instances where newly commissioned officers of the Medical Corps of the army have made similar statements before medical bodies. These officers have been uniformly disciplined with severity by the Surgeon General's office.

The reporting of venereal disease is but passing through the same stages that the reporting of tuberculosis passed through not so many years ago. The

older physicians who will remember the opposition to reporting tuberculosis should bear well in mind the change in attitude and should guide the younger men to full reporting.—*Minn. Health Journal*, Dec. 5, 1918. (M. T.)

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Winter sports for children have been instituted in Minnesota. Last summer over 150 boys and girls, of all ages under ten, were taken daily to the public parks of Minneapolis by workers of the Anti-Tuberculosis Committee, and regaled with supervised play and unlimited crackers and milk. All were frail and anemic, and were gathered from the congested districts of the city; but a survey made by the visiting nurses has revealed the fact that not one of them developed influenza or pneumonia during the recent severe epidemic. The nurses attribute the children's powers of resistance to the days of healthful activity in the open air. As a result of this satisfactory experiment, the Children's Year Committee of the Woman's Council of National Defense is providing supervised skating and other winter sports and games for all school children under sixteen this winter. Competent supervisors have been engaged, and skates, skees, sleds, and toboggans have been furnished through the parents-teachers associations.

"If supervised summer play proved so beneficial, why not supervised winter sports?" the committee asked itself. And this is the answer.

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New York State.—Many rural communities in New York State have been without physicians because of death, permanent military appointments, or other causes. As a result of letters received from a number of such communities, the State Department of Health has undertaken to put the authorities in such places in touch with physicians desiring rural locations. This has been accomplished by advertisements in medical journals and newspaper publicity. To date replies have been received from 96 physicians located in 20 different states and names have been sent to 21 communities.

One of the largest nuisances investigated in the history of this Department is that occurring along the Riverside Drive section of New York City arising out of offensive odors and fumes generated in a number of large industrial plants, some eight in number, three of which are directly across the Hudson River in Edgewater, N. J.

The nuisance affected some 200,000 people in the city and was made the subject of investigation and reinvestigations in the years 1913, 1915, 1917 and 1918. Following each of these investigations and as the sources of nuisance were determined, recommendations were made and improvements carried out until in 1918 only two plants remained responsible for the conditions of nuisance, namely, the General Chemical Co., and the Corn Products Co.

As a result of these investigations, special legislation in 1917 and a series of hearings before the State Commissioner of Health in 1917 and 1918, these two plants have been induced to design and now have under construction improvements which will largely if not entirely eliminate these final sources of objectionable odors and fumes.

A sanitary survey was recently made by the Engineering Division of the greater portion of the village of Highland Falls. This survey was made for the purpose of bringing about improvement in sanitary conditions in the district adjacent to the government reservation at West Point. As a result of the inspection and of the serving by the local health authorities of preliminary notices to owners of property on which unsanitary conditions were found, some 80 per cent of these nuisances have been abated.

That portion of the sanitary code adopted by the Board of Health of New York City, which requires that the names of the ingredients of proprietary or patent medicines be registered in the Department of Health before such medicines can be sold, has been declared invalid by the New York Court of Appeals.

The court shows that many concerns have imported stocks on hand of which it would be impossible to learn the ingredients and that consequently the law becomes confiscatory with regard to these stocks. The court, however, shows that the purpose of the law is the preservation of public health and safety and is well within the limits of police power and that if the law is amended so as not to cause the forfeiture of existing stocks, it can be made valid. (M. T.)

The whooping-cough regulations, recently adopted by the Hornell Board of Health, require the placarding of the house and the exclusion of persons not immune to the disease. The patient is allowed the liberty of the yard or premises provided he avoids contact with non-immunes and wears an arm band with the words "whooping-cough" printed in red ink.

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West Virginia.—The traveling health exhibit of the West Virginia State Department of Health has been put under the charge of Charles C. Stockman, 2d, as Director. Mr. Stockman came to West Virginia from the Massachusetts Institute of Technology where he graduated.

With him is Mrs. Jean T. Dillon, graduate nurse of broad experience in public health work, who has been appointed Director of Child Welfare and Public Health Nursing.

Mrs. Leni McWhorter Jenkins is with the car assisting in the organization of Women's Clubs and furthering the interest in the public health.

Dr. Carl F. Raver, a graduate of the University of Michigan and one time coöperative health officer of La Salle, Peru, and Oglesby, Ill., has been appointed Director of the Division of Preventable Diseases and Assistant Health Commissioner with the West Virginia State Department of Health.

(M. T.)

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Texas.—The State Public Health Commission at its fourth meeting, which was held in Dallas, voiced a plea for a special bureau of child hygiene. The suggestion is that there be established such a bureau to include public health nursing as one of the departments of the State Board of Health.

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Wisconsin.—The Wisconsin State Board of Health is seeking from the Legislature appropriations for the establishment of bureaus of child welfare and contagious diseases, and for venereal disease control to meet the offer of the Federal government. In the latter field work already has begun. The Board is supporting a bill of far-reaching effect relating to pollution of streams and water supplies, and creating provisions for preserving the purity of the waters of the state; providing for supervision and control by the State Board of Health over water and ice supplies, sewerage, trade wastes and refuse disposal; and for the maintenance, alteration, extension, construction and operation of systems relating thereto.

Other health measures sponsored by the Board at this session are as follows: Exempting local health officers from personal liability in the performance of official duties; for reports to the Board by public health nurses; authorizing local boards of health to establish quarantine and close schools under certain conditions; registration of births, deaths and marriages, recording of which has been neglected or delayed. (L. W. B.)

The Wisconsin State Laboratory of Hygiene has issued a general warning against a threatened outbreak of rabies in Wisconsin, particularly in the counties of Milwaukee, Waukesha, Dane, Washington, Jefferson, Racine, Vernon, Ozaukee, Rock and Walworth.

Under the auspices of the State Board of Health, the Wisconsin Legislature witnessed the War Department's film, "Fit to Fight," describing the venereal disease peril. Captain E. R. Beckwith, U. S. Army, described to the lawmakers the need for control of venereal diseases among the civilian population.

A far-reaching bill extending the State Board of Health's control over water supply and sewerage systems and ice supplies of the state is pending in the Legislature. The Milwaukee Health Department and the State Board coöperated in its drafting. Plans and specifications must be approved by the State Board before a water or sewerage system can be installed or material alterations or extensions made, according to the bill.

Compulsory health insurance legislation was not favored by the special legislative committee appointed by the 1917 Wisconsin Legislature to investigate the problem. In its report to the present Legislature the committee, headed by former Senator W. W. Albers, Wausau, Wis., recommended preventive health measures as more likely to accomplish results. The committee's recommendations include:

More liberal appropriations for the State Board of Health and local health boards, including appointment of a paid county health officer in every county.

More support of state health laboratories as centers of preventive medicine and aids to the development of "group" medicine.

Universal introduction of physical and medical examinations in the schools.

Establishment of district nursing centers.

A program for reduction of infant mortality and encouragement for creation of a bureau of child welfare, as proposed under the present appropriation plan of the State Board of Health.

Liberal encouragement for the development of financial community support of hospitals and sanatoria.

A comprehensive housing plan adapted to the future needs of the industrial population.

Inclusion of occupational diseases in the workmen's compensation act.

More active supervision and control by the state insurance department of voluntary insurance undertakings providing relief for wage-earners during prolonged periods of illness.

Exclusive of the normal mortality for pneumonia and influenza, 7,236 deaths are attributed to the epidemic in Wisconsin during October, November and December, 1918, and the death-rate for that period was 21.8, the highest ever recorded in the state. During the calendar year 1918 there were 34,469 reported deaths, exclusive of stillbirths, representing an annual death-rate of 13.6 per thousand, or more than 3 per thousand higher than any rate recorded in Wisconsin. Of influenza and pneumonia, 102,733 cases were reported in 1918. Tuberculosis statistics show that the mortality rate per 100,000 declined from 107.8 in 1909 to 91.6 in 1918 in this state.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh, and P. M. Holmes.

Sanitary Conditions in Labor Camps.—California has a Labor Camp Sanitation Law which has revolutionized the housing and living conditions for some 75,000 migratory workers. This is the result of the efforts of the State Federation of Labor. In contrast to former conditions, over forty per cent of all the camps inspected have been brought up to a standard exceeding the law's requirements, while last year's inspections showed seventy-four per cent of the camps were in compliance with the law. Employers of labor have gone on record expressing satisfaction in the increased efficiency of their working force, while California has been singularly free from the labor difficulties in lumber regions and construction camps of the Pacific Northwest, since the camp sanitation policy has been in force.—Paul Scharrenberg, *American Federationist*, October, 1918, pp. 891–892.

✻

Medical Service in the Conservation of Industrial Man Power.—Dr. Selby bases his observations on the result of personal inquiries made at 170 industrial establishments for the U. S. Public Health Service. The modern employer realizes that the most capable workman is (1) healthy, (2) free from worry, and (3) engaged in work he likes and is able to do, rapidly and well. The specific duties of an employer who wishes to develop a permanent, capable working force are included under 14 headings, in all of which the special knowledge and skill possessed by physicians peculiarly fit them to assist employers. Physicians who have gone into the firing line of industry are just as greatly needed there as they are on the firing line of battle. A special training for industrial medical service should be devised and have government authorization and supervision. Competent medical men, first aid men and nurses should be given intensive courses of training as a preliminary.—C. D. Selby, *Jour. A. M. A.*, Aug. 3, 1918, pp. 333–336.

✻

Modern Industrial Medicine.—The old-time company physician has passed and the day of the modern, highly-trained industrial medical specialist has arrived. Since the withdrawal from industry of large numbers of men for military service, physically perfect men are becoming very few. It is important that each worker should be placed at work compatible with his physical condition, in order to use what talent he possesses and see that his days of productivity are not shortened. At Dr. Farnum's plant it is maintained that every man who is not a menace to his fellow-workers by contagion is capable of doing some work safely and of doing it well. One sees in some plants in an hour a hundred jobs filled by apparently able-bodied men, which could have been done equally well by a cripple or a defective. In his plant the superintendent of safety has but one leg, but by that very token he is more valuable as a safety man than if he had two legs. The author finds that the labor turnover varies inversely as the physical defects of the laborer and that the worse the physical defect, the less the accident incidence. The re-establishment of the returned crippled soldier lies in the hands of the industrial medical men.—In the discussion of this paper, Dr. J. W. Schereschewsky pointed out that a man who has lost a leg may not have his physique impaired thereby. His digestive apparatus and vascular system may still be far superior to that of one who possesses all of his limbs. When we refuse employment to such men we disregard a source of potential energy.—C. G. Farnum, *Jour. A. M. A.*, Aug. 3, 1918, pp. 336–337.

✻

Improved Health of T. N. T. Workers.—In the six months, October, 1916, to March, 1917, there were 169 cases of serious illness called to the attention of the Minister of Munitions, whereas in the corresponding period for 1917–1918 there were forty-two cases. In April of this year, four cases, and in May, only one case. This result is due to close medical supervision of the workers, with improved methods of working, and the substitution of mechanical processes wherever possible.—*London Letter, Jour. A. M. A.*, Aug. 10, 1918, p. 484.

✻

Reconstruction of British Labor Regulations.—It has become evident in England that one of the most urgent needs of social reconstruction is the universal application of the principle of the protection of the standard of life. This is embodied in the factories, workshops, merchant shipping, mines, railway, shop, truck and trade board Acts, together with corresponding provisions of the public health, housing, education and workmen's compensation Acts. These imperfectly drafted and piecemeal statutes admittedly require extension and amendment at many points. They should be supplemented by new legislation providing among other reforms in industry the general reduction of the working week to forty-eight hours, securing to every

worker at least the prescribed minimum of health, education, leisure and subsistence. The system of a legal basic wage in its various forms needs to be so extended as to ensure to every worker, irrespective of sex, a sufficient wage to provide for all the requirements for a full development of body, mind and character. No nation has any right to exclude any class or section whatever from these rights.—*Public Health Journal*, September, 1918. (*S. G.*)

✱

Medical Treatment for Wage Earners.—At a meeting some time since the American Hospital Association recognized social health insurance to be a matter of prime importance in the social policy of the world. One of the resolutions included a request to the board of trustees to make a study of health insurance in its relations to hospitals and dispensaries and to afford assistance in the preparation of plans and of bills for legislatures.

Members of the national and state hospital associations are urged to coöperate wherever possible in effective solution of health insurance problems.

"The proper solution of the problem, including the formation of legislative bills and the administrative organization of the plan," the resolution states, "are of prime importance to the hospitals and dispensaries for the reason that the fundamental basis of such insurance should be the medical treatment and rehabilitation of disabled wage earners."

In his favorable report to the convention as chairman of the Committee of Social Insurance, Dr. Thomas Howell, superintendent of the New York Hospital, said the medical profession should insist upon participation, together with employers and employees, in the shaping and administering of health insurance laws, now proposed in many states.

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The Wearing of Face Masks to Stop Germs.—Drs. Doust and Lyon, M. C., U. S. Army (*Jour. A. M. A.* Oct. 12, 1918, pp. 1216–1219), found that during ordinary or loud speech, infected material from the mouth is rarely projected to a distance of four feet, and usually less. During coughing infected material may be projected at least ten feet. Masks of coarse or medium gauze of from two to ten layers do not prevent the projection of infected material during coughing. Such masks are worthless, therefore, in preventing the dissemination of respiratory infections. A three-layer buttercloth mask is efficient. Dr. Geo. H. Weaver (*Jour. A. M. A.*, Oct. 26, 1918, pp. 1405–1407), found that six layers of fine gauze (mesh 40 to 44) tried on a patient held back almost all the bacteria during explosive coughing or expiratory efforts. The nurses in Durant Hospital are instructed to wear two super-imposed masks each composed of three layers of this fine gauze when attending cases of virulent infections of the respiratory tract. The gauze used is absorbent and is probably preferable to buttercloth. The large particles of saliva are probably more dangerous than the finer ones, because they contain more bacteria and more toxic substances which may act on the mucous membrane of the exposed individual, so as to favor the growth and penetration of the bacteria. Masks tend to check the spread of these diseases since they interfere with putting the hands to the mouth and nose, and thus remove an important mode of infection. Many family epidemics might be limited by the use of them. Emphasis must still be placed on proper sterilization of eating utensils, destruction of all discharged matter, avoidance of contaminated foods, and special care regarding the washing of the hands after each handling of the sick.

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Color Blindness.—The results of the studies made by Dr. Collins for the U. S. Public Health Service were to the effect, that the usual methods for detecting color blindness with test skeins, such as Jennings and the Holmgren test were confusing and unreliable and should be rejected. The Jennings test is not adapted for testing sailors and trainmen and its use in this way is dangerous. The test is quite inferior to the lantern tests in which specially prepared colored glasses are used. Furthermore, modifying glasses may be placed in front of the colored glasses to stimulate mist, fog or rain, and produce effects on signal lights in actual practice.—Report on studies of Dr. Geo. L. Collins, *Jour. A. M. A.*, Sept. 28, 1918, p. 1086.

✱

Medical Studies in Aviation.—A most important series of articles bearing upon the relation of air, particularly oxygen content, to the physical well-being of the individual appears in the issue of the *Jour. A. M. A.*, for Oct. 26, 1918. The papers represent the results of investigations made at the Medical Research Laboratory, Air Service, Mineola, L. I. While the studies were made for the purpose of the protection of aviators against the effects of high altitudes, low barometric pressure and deficiency of oxygen, they are directly applicable to a number of problems in industrial medicine. The re-breathing apparatus perfected by Yandell Henderson and E. G. Seibert is adaptable to physical examinations, where it is desirable to test and measure the "functional power of the heart." The apparatus is fundamentally a measurement of vitality in its use and can be made to determine the qualities "condition," "training," "fitness," "out-of-training," and "staleness." E. C. Schneider gives the results of physiologic observations and

methods; James L. Whitney, cardio-vascular observations in particular; Knight Dunlap, psychologic observations and methods; W. H. Wilmer and Conrad Berens, ocular functions; E. R. Lewis, the observations on hearing and the motion-sensing apparatus of the ear; and Stewart Paton the effects on personality. Industrial physicians should read the entire seven papers which are contained on pages 1382–1400 of the above mentioned Journal.

✻

Army Shoe and Mild Foot Disabilities.—Ninety-eight per cent of recruits can be fitted with the army shoe. This fact alone is the strongest possible recommendation for its use. A shoe will enlarge sidewise but never lengthwise. Repairing tends to shorten a shoe and re-building actually does shorten it. Short shoes cause more foot-troubles than narrow ones; hence the great need of the two-thirds inch room in the length of the shoe. The size and musculature of the foot increase very noticeably after a few months use. With the army shoe, correctly fitted, corns disappear and "ingrowing" gradually ceases. The preservation of the transverse arch of the foot depends mostly upon the strength of the muscles within the foot. In the manufacture of shoes, the inner sole is likely to be concave instead of convex as it should be to match the contour of the transverse arch of the foot.—J. T. Rugh, *Jour. A. M. A.*, Oct. 12, 1918, pp. 1215–1216.

✻

Federal Policies for Women in Industry.—General Orders No. 13 by the Chief of Ordnance declared that the eight-hour day, prohibition of night work, one day of rest in seven, a minimum wage based on the cost of living, and equal pay for women doing the same work as men were the "mechanisms of efficiency." The Committee on Women in Industry of the Department of Labor, with the approval of the Secretary of Labor, recommended standards for the employment of women, in brief, as follows: No more than the eight-hour day or the forty-eight hour week; half holiday on Saturday; one day of rest in seven; at least three-quarters of an hour be allowed for a meal; rest periods of ten minutes in the middle of each working period without thereby increasing the length of the working day; no woman employed between the hours of 10.00 p. m. and 6.00 a. m.; wages equal with men's; wage rate based on the cost of living for dependents and not merely for the individual; the observance of state labor laws and industrial codes covering comfort and sanitation with special recommendations for posture at work, safety, selection of occupations for women (those undesirable are: constant standing, standing or other postures causing physical strain, repeated lifting of weights of twenty-five pounds or over, or other abnormally fatiguing motions, heavy work, exposure to heat over 80° or cold under 50°, adequate safeguards against dust, fumes, and poisons); and industries employing poisons which are proved to be more injurious to women than to men. Furthermore, uniforms, caps, and shoes should be featured. No work shall be given out to be done at home. Standards for employment management, supervising women, and selection of workers through physical equipment and through experience, as well as means for promoting coöperation of workers, are necessary.—Mary Van Kleeck, *The Annals of the American Academy of Political and Social Science*, Jan., 1919, pp. 87–94.

✻

Employing Expectant Mothers in Munition Factories.—The investigators in Leeds, England, under the prematernity scheme for the transfer of women, report that the applicants were referred to the factory medical officer, who passed on their physical state. Women on becoming pregnant are very adversely effected by night work apart from any degree of heaviness. Before the fourth month, they are moved from any work involving heavy lifting or sudden strain. At the end of the fourth month, they are transferred to light sedentary work and given less skilled operations for which they are paid at the ordinary standard rate for their work. At the end of the seventh month, or earlier if there are any medical reasons, they are transferred to work such as the general clothing store and sewing depot, where they make and mend overalls, caps, gloves, etc., used by other workers. The rest of the day is given up to the making of clothes for the baby, under the help and guidance of the sewing depot. They are allowed to lie down in the rest room during part of their dinner hour, and at any time if indisposed. They may remain at work until labor begins.—Adamson and Palmer-Jones, *British Med. Jour.*, Sept. 21, 1918, p. 309.

✻

Testing the Capacity of the Heart by Walking.—Any increased rapidity in the action of the heart in a subject, after a hike of from two to fifteen miles, which has not disappeared by the end of an hour, is not normal.—Joltrain and Baufle, *Abst. by Jour. A. M. A.*, Dec. 7, 1918, p. 1944, from Bulletins de la Société Médicale des Hopitaux, Paris.

✻

Maternal Nursing and the Sculptor's Model.—It is suggested that the premature and withered appearance of the married women in manufacturing districts is in some degree attributable to the check imposed on nursing their babies because of their employment.—Sir James Crichton-Browne, *Jour. of State Medicine*, cited by *Jour. A. M. A.*, Dec. 28, 1918, p. 2120.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

Effect of "Ground Glass" on the Gastro-Intestinal Tract of Dogs.—Many reports of so-called "glass poisoning" were made by newspapers and individuals, and the subject has been discussed in a number of medical journals throughout the country. In an attempt to determine what lesions, if any, are produced by glass in the gastro-intestinal tract, feeding experiments were carried out on dogs. The experiments proved that the ingestion of ground or powdered glass has no toxic effect and produces no lesion, either gross or microscopic, on the gastro-intestinal tract of dogs.—J. S. Simmons and W. C. von Glahn, *Jour. A. M. A.*, 71, 2127 (1918).

✻

Effect of Typhoid Lipovaccine in Increasing Susceptibility to Other Diseases.—There is no evidence that there is increased susceptibility to streptococcus inoculation in mice following typhoid vaccination. There is a slight amount of evidence in favor of increased resistance to the streptococcus possibly due to the mobilization of the leucocytes. It is probable that these facts will be applicable to other vaccines and other diseases, for in a series of 32 mice vaccinated against pneumococcus, similar results have been obtained.—E. M. Medlar, *Jour. A. M. A.*, 71, 2146 (1918).

✻

Increased Susceptibility of X-Rayed Guinea Pigs to Inoculation with Tubercle Bacilli.—Under the conditions of these experiments the exposure of guinea pigs to X-ray does not increase their susceptibility to the tubercle bacillus. Rayed guinea pigs are thereby rendered more susceptible to contaminating and to secondary infections. The method is of practical value in routine diagnosis and is unreliable unless carefully controlled by the use of the accepted methods which have become standard as laboratory practice.—Ellis Kellert, *Jour. Med. Research*, 39, 93 (1918).

✻

New Method for the Enrichment of Tubercle Bacilli in Sputum.—The sputum is placed in a test tube and diluted with equal volume of water. After the addition of a few drops of ammonia the tube is placed in the water bath at 50° C. for 15 to 20 minutes. Then is added a 10 per cent solution of aluminium sulphate in the proportion of 0.5 cc. to 10 cc. of diluted sputum. After the addition of several drops of alcohol-chloroform (equal parts), the mixture is well shaken and then centrifuged. Three layers are formed; smears are made from the middle layer, fixed in the flame and stained according to the method of Ziehl-Neelsen (Carbolfuchsin, decolorized with HCl-alcohol of 5 per cent strength of acid, and counterstained with methylene blue). In the absence of a centrifuge, the technic can be simplified. The diluted sputum and added ammonia are heated over a Bunsen burner; then the 10 per cent aluminium sulphate solution is added, well shaken and the whole raised to ebullition. The precipitate formed is smeared on slides, fixed and stained in the usual way. The ammonia has the effect not only of rendering the sputum homogeneous, but also of causing a precipitate in the presence of the aluminium sulphate. This precipitate, which appears throughout the entire tube, entangles the tubercle bacilli. The addition of equal parts of alcohol and chloroform renders the procedure more sensitive.

The author made a comparative test of his method with the classical method and with the antiformin method of Uhlenhuth in the examination of 1,200 sputa. Tubercle bacilli were found in 288. His method yielded the largest percentage of positive findings.—Kurt Bauer, *Deutsche med. Wochnschr.*, 44, 266 (1918).

✻

Prophylaxis of Malaria.—No deafness, visual defects or other disadvantages are likely to accompany or follow the administration of quinine, 30 grains daily for three to four weeks. Arsenic is a valuable adjunct to quinine in the treatment of malaria. The malignant tertian parasite would appear to be the most resistant type. As a result of intensive quinine treatment applied to nearly 39,000 men the opinion has been formed that complete sterilization of the blood cannot be obtained, that the drug is able to kill off young ring forms, but has no effect on gamate forms; that it has a powerful action by this method of administration of rapidly raising the hemoglobin of the blood. The chief measures on which we must rely for the eradication of malaria pertain to the destruction of the mosquito, the protection of man from bites, and the cure of the infected. Prophylactic quinine is a waste of time and money. We should search for some remedy other than quinine for the destruction of the malarial parasite.—G. T. Rawnsley and J. Warnock, *Jour. Royal Army Med. Corps*, 31, 60 and 31, 272 (1918).

Enrichment Method for Demonstrating the Cholera Organism in Feces.—The liquid medium contains: Terauchi peptone 40 grams, 10 per cent sodium carbonate solution 80 cc., sodium chloride 5 grams, gentian violet 10 cc. of a 1 to 200 dilution of a 1 per cent solution in alc. distilled water to make 1 liter; ten cc. of this medium is placed in each tube. The solid medium is the liquid medium plus 20 grams powdered agar per liter. The suspected feces (2 loops) should be sown into a tube of the liquid medium, which is then incubated for 6 hours. Subcultures on the solid medium are then made from the cloudiness about the walls at the top of the culture; they are incubated for 12 to 16 hours, after which Pfeiffer's phenomenon and other tests are made. In 39 out of 50 cases the only organism carried over was the true cholera vibrio. The cholera organism was recovered in every instance when a sample of feces was mixed with a loop of culture in a dilution of 1 to 20,000, which shows the efficiency of the method.—K. Sukegawa, *Japanese Med. Lit.*, 3, 7 (1918); *Chem. Abst.*, 12, 2594 (1918).

*

Bacteriological Investigations of the Urine in Influenza.—To obviate the inconvenience of demonstrating the Pfeiffer bacillus from the blood, the author sought to obtain the same information by making cultures or inoculations with the urine. The urine was procured aseptically with the catheter and added in 10 mil quantities to citrated peptone water, into which a few drops of hen's or duck's blood had previously been allowed to fall. This procedure not only proved successful in showing the Pfeiffer bacillus, but permitted of its detection in ten cases in which blood cultures had been negative. The same procedure, carried out in the case of two control subjects not suffering from influenza, yielded negative results.—Dujarric de la Riviere, *Presse Médicale*, Oct. 24, 1918; *N. Y. Med. Jour.*, 109, 3 (1919).

*

Sachs-Georgi Precipitation Test for Syphilis.—The author has very greatly simplified the technic of the diagnosis of syphilis by flocculation. Three drops of fresh human non-inactivated serum are mixed with one cc. of a sodium chloride solution and inactivated by heating at 56° C. for one-half hour. Then half a cc. of a cholesterinized extract of calf's heart, to a dilution of $^1/_6$, is placed in the oven for 2 hours and then allowed to remain during the night at room temperature. A flocculation represents a positive result. The results offer a concordance with Wassermann's reaction in some 91 per cent of the cases. It is more sensitive and also much more simple than the original procedure of Sachs and Georgi, who utilized, in principle, the precipitation of the globulins under the favorable action of cholesterin.—M. Mandelbaum, *Münchener med. Wchnschr.*, Oct. 12, 1918; *Med. Rec.*, 95, 76 (1919).

*

Action of Chlorinated Antiseptics on Blood Clot.—The work demonstrates that the chlorinated antiseptics have no power to penetrate blood clots and destroy bacteria therein contained. Correspondingly, blood clots may protect virulent bacteria for a long period of time and the organisms properly planted will be able to proliferate in a normal manner. It seems probable that the fibrin of the blood clot is the resistant substance as plasma and red and white cells are easily dissolved by these antiseptics.—H. D. Taylor and M. G. Stebbins, *Jour. Exp. Med.*, 29, 125 (1919).

*

Meningococci and Antimeningococcic Serums.—A general review of the writer's work on meningococci with especial reference to agglutination and complement fixation. Three special media were used, and the characters of the organisms when grown upon them are described. Four horse antimeningococcic serums were prepared, A, B, C, and D. These are distributed by the Institute Pasteur for diagnostic purposes. Only one strain corresponding with serum D was met with and seven strains exclusively sensitive to serum C out of 200 strains examined. More than half the remainder reacted with serum B. Gordon's types I and III belong to serum A group, and his II and IV to group B. Meningococci are not easily agglutinable organisms. Meningococci were found to be strongly lysogenic and highly susceptible to specific lysins. The specificity of the complement fixation reaction was not found to be high. In collaboration with Netter a practical method of valuation of the therapeutic action of an antiserum was worked out. The writers consider that their results support their general thesis that each microbe is a "mosaic" of antigens, of which one is dominant and fixes the "type" to which a strain belongs.—Nicolle Debains and Jouan, *Ann. de l'Inst. Pasteur*, 32, 150 (1918); *Rev. Bact.*, 8, 33 (1918.)

*

The Impossibility of Watering Milk by Giving Large Quantities of Water to the Cow.—The author reviewed the work of Malpeaux, Mallèvre and Regnard which show conclusively that it is impossible to produce watered milk by giving excessive quantities of water to cows. Many dairy experts and chemists still contend that it can be done.—C. Porcher, *Ann. fals.*, 10, 304; *Bull. Agr. Intelligence*, 9, 74 (1918); *Chem. Abst.*, 12, 1569 (1918).

Antigonococcus Lipo-Vaccine.—The vaccine is prepared by the method used in the preparation of the antityphoid lipo-vaccine of le Moignic and Pinoy. Eighteen-hour-old cultures of the gonococcus are killed by being kept in the ice-chest for 24 hours. The killed cocci are then incorporated with the oils used in the preparation of the antityphoid lipo-vaccine. The vaccine in use at the present time contains about 5 mgs. of dead culture or about 12,500 millions of gonococci in one cc. The commencing dose is 0.5 cc. The vaccine is injected into the subcutaneous tissue of the flank, and there is but little local reaction.—Le Moignic, Sezary and Demonchy, *Compt. rend de la Soc. de Biologie*, 84, 299 (1918); Rev., *Bact.*, 8, 57 (1918).

✻

The Bacteriology of Measles.—The chief bacteria to engage the attention in connection with measles at present are: (1) the diplo-coccus found by Tunnicliff in the blood early in the attack and in the throat and nose; (2) influenza bacilli, and (3) hemolytic strepto-cocci.—Ludwig Hektoen, *Jour. Am. Med. Assoc.*, 71, 1201 (1918).

✻

A Study of Diphtheria Carriers in a Military Camp.—The data for the paper were derived from a study of a large number of cases and carriers. A single negative culture is only of relative value. The importance of nasal cultures is shown by the fact that in routine cultures taken from carriers, 26 per cent were positive from the nose. Cultures from chronic carriers should be tested for virulence. The carrier state is maintained by some underlying pathologic condition of the affected tissues. In the great majority of cases the carriers harbor the bacilli in the tonsils; a few carry the germs in the nose only; a small group maintains the infection in both nose and tonsils. In persistent carriers in whom the focus of infection is the tonsil, enucleation offers the only certain procedure for terminating the carrier state. The hospital personnel should be given a Schick test, and those giving a positive reaction should be immunized with toxin-antitoxin mixture. —F. R. Keefer, S. A. Friedberg, and J. D. Aronson, *Jour. Am. Med. Assoc.*, 71, 1206 (1918).

✻

Freezing Point of Blood Serum in Diagnosis of Typhoid.—The author investigated the osmotic pressure in the blood serum of twelve typhoid patients and four other patients whose disease proved not to be typhoid. In 75 per cent of the typhoid cases the osmotic pressure in the serum was found decidedly reduced at the very beginning and through the height of the disease. In others it fluctuated. He suggests that this early reduction in the osmotic pressure as shown by the freezing point may prove useful in the very early differential diagnosis of typhoid.—A. E. Adler, *Corresp. Blatt f. Schweizer Aerzte*, 48, 1072 (1918); *Jour. Am. Med. Assoc.*, 71, 1176 (1918).

✻

Spirochetes in Rats at Lima.—Rats caught at different points in Lima were found to harbor the spirichete of hemorrhagic jaundice. The organism was demonstrated in two adult rats. The kidneys were the only organs examined. The spirochetes were found in the convoluted tubules; sometimes they were in such numbers that they obstructed the lumen.—R. E. Ribeyro, *Cronica Medica, Lima*, 35, 157 (1918); *Jour. Am. Med. Assoc.*, 71, 935 (1918).

✻

Brilliant Green as an Antiseptic.—Brilliant green is an active and efficient antiseptic. It is non-irritant and acts well in the presence of serum. It stains dead tissue green and in this way may aid the surgeon in determining what to excise. It can be used after the method of Carrel.—C. H. S. Webb, *Jour. Royal Army Med. Corps*, 31, 315 (1918).

✻

Spirochetosis Icterohemorrhagica.—An address delivered before the Section of Medicine of the Royal Medical Society which deals with the description of the organism, the clinical manifestations, pathology, etiology, diagnosis, and laboratory findings.—B. Dawson, *Lancet*, No. 4966, p. 575 (1918).

✻

The Influenza Epidemic at Camp Devens, Mass. —B. influenzæ has been isolated from pneumonia sputum, pleural fluids, and the nasopharynx during life, and from the heart's blood, lungs, and accessory sinuses postmortem, in a high percentage of cases of this disease, very frequently in pure culture. Specific agglutinins have been found in the serum of convalescents which produce satisfactory reactions, especially during the weeks following infection, on homogeneous and heterologous cultures. A high titer serum has been produced in rabbits by repeated inoculations with living cultures. This serum has shown an increase of potency with the passage of time. Such serum should be of value as a means of differentiating allied organisms.—L. H. Spooner, J. M. Scott and E. H. Heath, *Jour. A. M. A.*, 72, 155 (1919).

✻

Vaccination Against Anthrax.—The author describes an anti-anthrax vaccine now made in Uruguay. It is a uniform emulsion of a certain number of free spores, and confers a more durable immunity than vaccines made from the bacteria themselves. —H. J. Rossello, *Rev. Inst. Bact. (Buenos Aires)*, *Jour. A. M. A.*, 72, 232 (1919).

Sodium Citrate Transfusions.—One hundred transfusions by the sodium citrate method have been performed for various disturbances, and the favorable results compare almost absolutely with those obtained by other authors using unmixed blood. It should, therefore, except only in special instances, be adopted as the routine method, since both the clinical and the laboratory findings support this view.—A. L. Garbat, *Jour. A. M. A.*, 72, 1 (1919).

✻

Influenza at the Puget Sound Navy Yard.—The authors believe that the disease at the navy yard was due to an organism which should be classed as a hemolytic streptococcus. The findings failed to show that the influenza bacillus was in any way connected with the production of the disease. The use of killed cultures prevented the development of the disease in many of the personnel and modified its course favorably in others. A mixture of two or more strains has been employed. No suggestion is offered with regard to the duration of the immunity produced.—C. F. Ely, B. J. Lloyd, C. D. Hitchcock and D. H. Nickson, *Jour. A. M. A.*, 72, 24 (1919).

✻

Etiology of Yellow Fever.—The results obtained are the result of a study carried on at Guayaquil, Ecuador, under the auspices of the International Health Board of the Rockefeller Foundation. The blood of yellow fever patients was injected into guinea pigs. Dark field examination of the blood, liver and kidneys of these inoculated animals revealed the presence of an organism whose morphologic characters closely resembled those of the organism (Leptospira) described in cases of infectious jaundice. By the use of special methods the organism has been obtained in pure culture. Pure cultures were obtained directly from the blood of yellow fever patients in a limited number of cases. The organism does not grow on ordinary bacterial culture mediums. A positive Pfeiffer phenomenon was obtained in the majority of instances with serum derived from convalescents from yellow fever when tested with the organism isolated from the cases or infected animals. The virus is filtrable.—H. Noguchi, *Jour. A. M. A.*, 72, 187 (1919).

✻

Triple-Dye Medium for the Diagnosis of Typhoid and Dysentery.—The formula for the medium is: agar (3 per cent), 1,000 cc.; lactose, 30 grams; eriochrom yellow 2 G, 1 gram; helvitic blue, 0.65 grams. The dyes are added to the lactose agar and the medium is sterilized in the Arnold for fifteen minutes on three consecutive days. The advantages of the medium are: (a) simple preparation; (b) double color change; (c) sharp color change with capacity of B. coli colonies contrasted with transparent growth of typhoid-dysentery colonies; (d) color change as obvious with reflected as with transmitted light, natural or artificial; (e) very slight inhibition of growth with no alteration in the agglutinability of the typhoid or dysentery strains; and (f) total suppression of cocci and spore-formers. The green medium is turned blue by B. coli and acid-forming organisms, while the typhoid-dysentery group gives it a yellow color.—Rudolf Massini, *Corr.-bl. schweiz. Aerzte*, 48, 887 (1918); *Abst. Bact.*, 2, 204 (1918).

✻

Effect of Cotton Stoppers on Bacterial Counts in Bacteriologic Technic.—It appears from the results that about 8 per cent of the organisms adhere to the cotton stopper on shaking the blank. Organisms were found on strands of cotton. B. subtilis did not generally survive sterilization in the center of cotton stoppers. Shaking bottled milk with the original cap up and inverted gave satisfactory agitation for a representative sample. No difference was found in the propagation of bacteria in glass or paper containers.—R. S. Dearstyne, *Jour. Dairy Sc.*, 1, 512 (1918).

✻

Importance of Geologic Factors in Sewage Purification.—In the dissolved oxygen absorption test for the standardization of a sewage effluent, it is essential that the latter should be diluted with water collected from the river or stream into which the effluent is discharged instead of with laboratory tap-water. The results also suggest that waters from sedimentary rocks, and those associated with the detritus of eruptive rocks, where the active chemical constituents have been or are released, may be expected to affect profoundly the biological processes of oxidation.—E. A. and A. E. Cooper, *Biochem. Jour.*, 12, 275 (1918); *Jour. Soc. Chem. Ind.*, 37, 747 a (1918).

✻

Brom Cresol Purple and Litmus as Indicators for the Classification of Tubercle Bacilli.—In these experiments three human and three bovine cultures were used, and at least weekly records were made for fifteen weeks. In litmus glycerine bouillon both types turned the bouillon more or less blue at first and the bovine cultures remained bluish; but in human cultures the bouillon, instead of becoming red, gradually became yellow. With the human strains the brom cresol purple bouillon became first light straw-colored, then lemon-yellow. Both indicators are valuable for differentiating types of tubercle bacilli.—L. Frothingham, *Jour. Med. Res.*, 39, 153 (1918).

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INFANT MORTALITY IN THE UNITED STATES DURING ONE YEAR OF WAR.

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Read before Vital Statistics Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

Dr. Crum shows that infant mortality is largely related to season and place. The effect of these factors is greatest where extremes of temperature and humidity are greatest. He suggests for the most hopeful method of attack the education of the mother. He lays emphasis on the importance of breast feeding.

THE United States became one of the belligerents in the world war in April, 1917. In the *Economic World* of July 7, 1917, Dr. Frederick L. Hoffman contributed an article entitled "Weekly Index Numbers of National Health and Wellbeing." In that paper Doctor Hoffman suggested six groups of data which possibly might serve as a basis, if collected regularly, promptly and at frequent time intervals—preferably weekly—as indexes of national health and wellbeing.* The general urban death rate was placed first in the list of six groups of data. This particular suggestion was so favorably received by the Division of Vital Statistics of the United States Bureau of the Census that by September, 1917, its chief, Dr. W. H. Davis, had succeeded in interesting several of the health departments of our larger cities to the extent that they were telegraphing weekly to the Census Bureau their reported mortality from all causes, all ages and under one year of age. By October, 1917, some 40 large cities were coöperating in the weekly contribution of their mortality data. The following paper is based upon these complete returns from 46 cities for the year ending September 28, 1918.

Invaluable as these data are in themselves it is regrettable that we do not have equally extensive and reliable information either of total population or of births. Never before in our history has the need of more frequent census-taking of our population and more accurate and complete birth registration been so urgent as during the last two years. A national census of population as of 1915 or later

*The six groups of data suggested by Dr. Hoffman for weekly statistical averages of social wellbeing, were as follows:

I. The general urban death rate.
II. The sickness rate in industry.
III. The accident rate in industry.
IV. The number of arrests in large cities.
V. City expenditures for poor relief.
VI. The ratio of unemployment.

would have been of inestimable service to the government in many directions, and only when our birth registration becomes more universally complete can we hope accurately to measure and compare the trend of infant mortality in the United States by weeks, months and years, or, by longer time intervals.

In the following table are presented the names of the 46 cities from which data have been derived for this paper—their geographical grouping, estimated populations under one year of age, reported infant deaths during the year ending September 28, 1918, and the infantile death-rates based upon such estimated populations. These cities together embraced a total population of 19,478,921 in 1910, or 21.2 per cent of the aggregate population of the continental United States, exclusive of Alaska. Probably at the present time these 46 cities contain close to 25 per cent or one-fourth of the entire population of the United States.

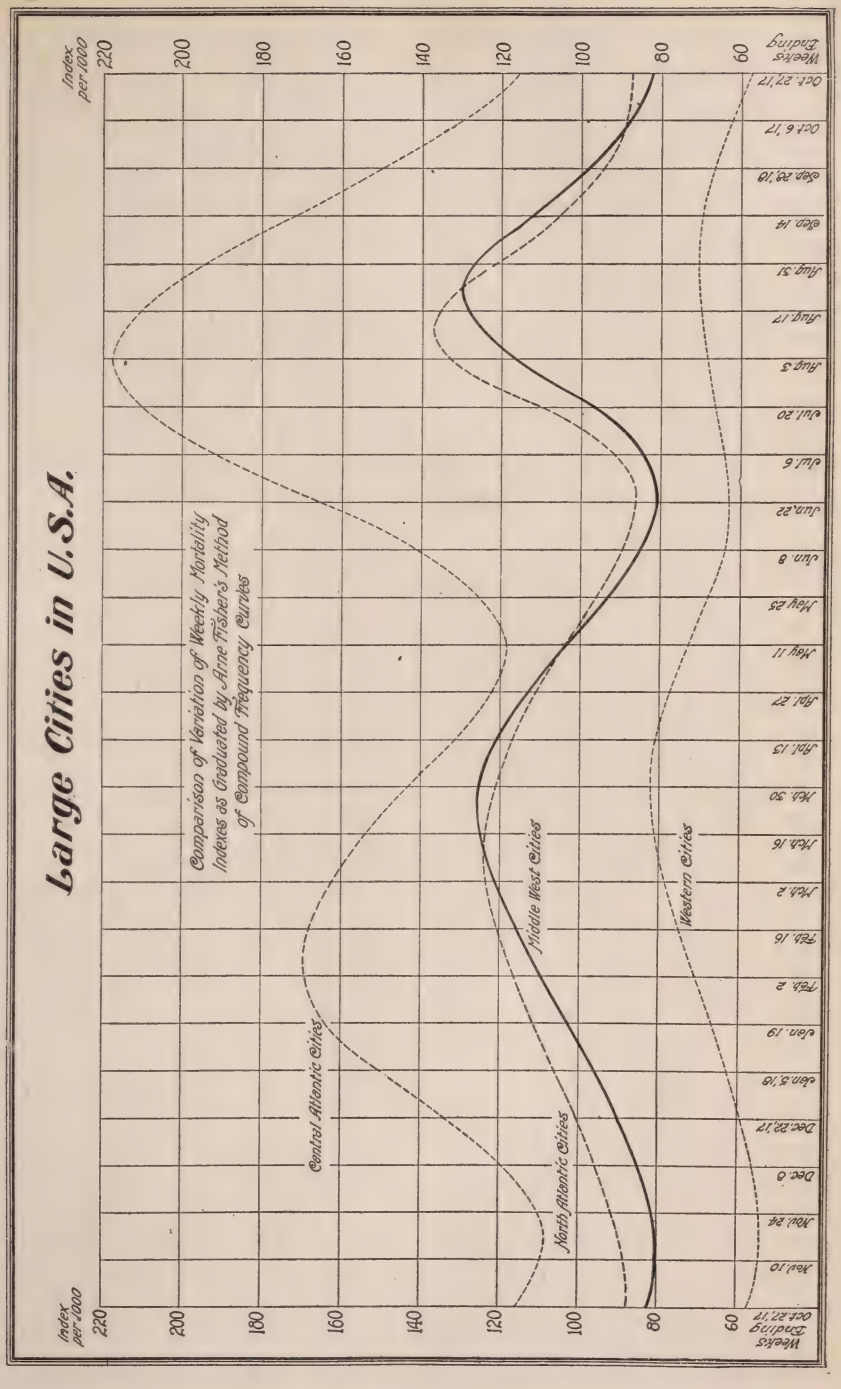
During the year ending September 28, 1918, there were 50,875 deaths of children under one year of age in these 46 cities combined, and the estimated aggregate population under one year of age was 479,665. This is the largest infant mortality experience recorded weekly that has ever been secured in the United States and it is doubtful if any other country can present an equally large experience collected in one year and reported by weekly time intervals.

In the following table only a summary of the infant mortality for the year ending September 28, 1918, is presented. According to this summary the lowest rate was reported from Spokane, Wash., or 44.0 per 1,000 estimated infant population; the highest rate was reported from Lowell, Mass., or 192.8 per 1,000 estimated infant population, but Baltimore, Md., with a rate of 187.1 was a close second. All of the Western cities reported comparatively low infantile death-rates and 6 of the 14 cities of the Middle Western group reported rates under 90 per 1,000. Only two cities of the North

COMPARATIVE INFANT MORTALITY OF 46 LARGE AMERICAN CITIES.—YEAR ENDING SEPTEMBER 28, 1918.

Cities	Estimated Population Under 1 Year	Reported Deaths Under 1 Year	Death-Rate Per 1,000 Est. Pop Under 1 Year
North Atlantic			
Albany	1,631	224	137.3
Boston	15,510	2,011	129.7
Buffalo	10,087	1,547	153.4
Cambridge	2,537	251	98.9
Fall River	3,583	625	174.4
Jersey City	7,283	814	111.8
Lowell	2,505	483	192.8
Newark, N. J.	10,260	1,067	104.0
New Haven	3,426	411	120.0
New York	133,110	11,593	87.1
Philadelphia	36,793	4,748	129.0
Pittsburgh	13,834	1,915	138.4
Providence	5,510	667	121.1
Rochester	4,897	563	115.0
Syracuse	2,933	454	154.8
Worcester	3,638	432	118.7
Total	257,537	27,805	108.0
Central Atlantic			
Atlanta	4,256	380	89.3
Baltimore	10,882	2,036	187.1
Richmond	3,349	476	142.1
Washington	6,130	844	137.7
Total	24,617	3,736	151.8
Southern			
Birmingham	4,212	431	102.3
Louisville	4,046	432	106.8
Memphis	2,582	298	115.4
Nashville	2,292	267	116.5
New Orleans	7,616	888	116.6
Total	20,748	2,316	111.6
Middle Western			
Chicago	57,312	6,093	106.3
Cincinnati	6,959	735	105.6
Cleveland	17,005	1,800	105.9
Columbus	3,433	410	119.4
Dayton	2,450	251	102.4
Grand Rapids	2,883	217	75.3
Indianapolis	4,671	536	114.8
Kansas City, Mo.	4,740	514	108.4
Milwaukee	9,479	1,077	113.6
Minneapolis	6,723	594	88.4
Omaha	2,835	251	88.5
St. Louis	13,912	1,265	90.9
St. Paul	4,469	365	81.7
Toledo	3,858	484	125.5
Total	140,729	14,592	103.7
Western			
Denver	4,322	397	91.9
Los Angeles	8,032	577	71.8
Oakland	3,674	214	58.2
Portland, Ore.	4,595	328	71.4
San Francisco	6,971	475	68.1
Seattle	5,350	299	55.9
Spokane	3,090	136	44.0
Total	36,034	2,426	67.3

CHART NO. 1.


Infant Mortality Statistics
Large Cities in U.S.A.
Comparison of Variation of Weekly Mortality Indexes as Graduated by Arne Fisher's Method of Compound Frequency Curves
Index per 1000
220
200
180
160
140
120
100
80
60
Weeks Ending
Oct. 27,'17
Oct. 6 '17
Sep. 29,'16
Sep. 14
Aug. 31
Aug. 17
Aug. 3
Jul. 20
Jul. 6
Jun. 22
Jun. 8
May 25
May 11
Apr. 27
Apr. 13
Mar. 30
Mar. 16
Mar. 2
Feb. 16
Feb. 2
Jan. 19
Jan. 5, '16
Dec. 22, '17
Dec. 8
Nov. 24
Nov. 10
Central Atlantic Cities
North Atlantic Cities
Middle West Cities
Western Cities

Atlantic group, Cambridge, Mass., and New York City, reported infant mortality rates of less than 100 per 1,000; in the Central Atlantic group Atlanta alone gave a rate less than 100 (89.3) and there was no city in the Southern group with a rate lower than 100.

In chart No. 1 is presented a comparative picture of the infant mortality by weeks for the 41 representative large cities of four geographical divisions of the United States. The year covered by this and the four succeeding charts ends September 28, 1918. These curves represent the carefully graduated weekly rates of infant mortality—all reduced to a yearly basis. It has been necessary to estimate the populations under one year of age and to use such estimates rather than living births in the calculations of the infant mortality rates. No claim is made, therefore, that these curves necessarily represent the exact or actual infantile death rates, but we do claim that they undoubtedly approximate them with sufficient closeness to serve as a valuable index for general purposes of comparison.

This first chart brings out clearly and emphatically two salient characteristics of infant mortality in this country, namely, that it is largely dependent upon *season* and *place*, or *location*. Season reveals its effect in all sections of the United States. Its effect, however, is greatest where the extremes of temperature and humidity are greatest and least where variations of the temperature and other climatic conditions unfavorable to infants are least extreme. The Central Atlantic cities, as a group, show highest winter and summer peaks of mortality represented respectively by rates of 179.7 for the weeks ending February 9 and 23 and 238.9 for the week ending August 10. On the other hand, the Pacific Coast or Western cities, as a group, show spring and autumn peaks of mortality represented respectively by rates of 90.9 during week ending February 9 and 83.9 during the week ending August 31.

The cities of the North Atlantic and Middle West groups occupy a position about midway between those of the Central Atlantic and Western groups. The seasonal highest peaks for the North Atlantic group of cities were 136.7 for week ending January 12, 1918, and 159.1 for week ending August 10; and for the Middle West group the seasonal highest peaks were 133.4 for the week ending April 13, 1918, and 151.1 for the week ending August 10, 1918.

The lowest seasonal infant mortality rates for the four groups of cities were as follows:

DEATH RATES PER 1,000 ESTIMATED POPULATION UNDER ONE YEAR OF AGE.

Groups of Cities	1917 Rates	1917 Week Ending	1918 Rates	1918 Week Ending
Western	40.4,	Dec. 15, and	50.5,	June 15
Middle West	75.4,	Dec. 8, and	68.7,	June 8
North Atlantic	74.1,	Oct. 13, and	76.1,	June 15
Central Atlantic	93.2,	Oct. 20, and	112.1,	June 1

The high points or peaks of infant mortality come somewhat earlier in the year in the Central Atlantic than in the three other groups of cities, but this is more noticeable in the winter or early spring than in the summer or early autumn mortality. The dates of the high and low mortality rates are so dependent upon temperature and humidity that they undoubtedly will vary from year to year, —depending upon the dates of the extremes of heat, cold and humidity as expressed in weekly means of these climatic factors. Excellent illustrations of this close correlation of temperature and infant mortality are presented in the two accompanying charts, Nos. 6 and 7, showing the maximum and minimum temperatures and infant mortality rates, by weeks, for each of the six years, 1907–1912, for New York City and Chicago. The increase in infant mortality with extremes of high and low temperatures and the

greater excess of infant mortality in the hot as compared with the cold seasons in New York City and Chicago are clearly demonstrated by these graphs.

Chart No. 2 shows the observed and graduated weekly infant mortality indexes of 16 North Atlantic cities for the year ending September 21, 1918. The observed rates for these cities, as the chart shows, are not so irregularly variant that graduation is difficult. The graduated rates correspond closely in the main with the observed rates. The weeks ending January 12 and August 12 represent, respectively, the highest observed rates. The high points on the graduated curve occur in the middle of March and the middle of August, respectively.

Chart No. 3 gives similar details for the four cities combined which are included in the Central Atlantic group. The generally high rates in this group are attributable in part to the large negro element in the population of Baltimore, Washington, Richmond and Atlanta. It is unfortunate that the white and colored infant deaths were not separately reported for it is a well-known fact that the negro infant mortality is much higher than the white infant mortality. The same observation applies with equal force to the adult population. To obtain proper health indexes or norms for cities or sections with large negro populations it is, therefore, necessary that deaths be reported with distinction of color in order that separate norms may be constructed for these two essentially different elements of the population. The weeks ending February 9 and August 3, respectively, represent the highest points reached by the graduated curve for this group of cities. The variations in the observed rates are much wider in Chart 3 than in Chart 2. Smaller numbers, the negro element, and possibly climatic and other factors will readily account for the wider variations in the Central Atlantic as compared with the North Atlantic cities.

Chart No. 4 shows that the infant mortality of 14 cities of the Middle West group combined presents two seasonal high points on the graduated curves each of about the same height. The week ending March 23 represents the high point of winter and spring excess mortality, while the week ending August 24 shows the highest summer mortality. The highest peak in the observed mortality occurred during the week ending August 10.

Chart No. 5 shows with great clearness the highly favorable infant mortality in the Western cities. Except Denver, all the seven cities in this group are Pacific Coast cities and the favorable effect of this, among other factors, is clearly revealed in the continuously low comparative infant death-rates. The highest observed rate was only about 90, week ending February 9, and the lowest observed rate was 50, week ending June 15. The summer excess infant mortality so noticeable in the Northern and Eastern cities is almost lacking on the Pacific coast. The highest infant mortality in this group occurs in the rainy season when the population is kept indoors more than during any other portion of the year.

Thus far we have not been able to graduate the observed infant mortality rates of the group of Southern cities. The observed rates have been frequently and widely variant throughout the year—probably due to small numbers and the large negro element in the population.

We have been able to compare the infant mortality, based upon births and deaths under one year of age, of New York City during the year ending September 28, 1918, with the previous year.

This comparison shows a difference in favor of the latter year equal to 5.7 per 1,000 living births. This means that the statistics as reported week by week show

CHART NO. 2.

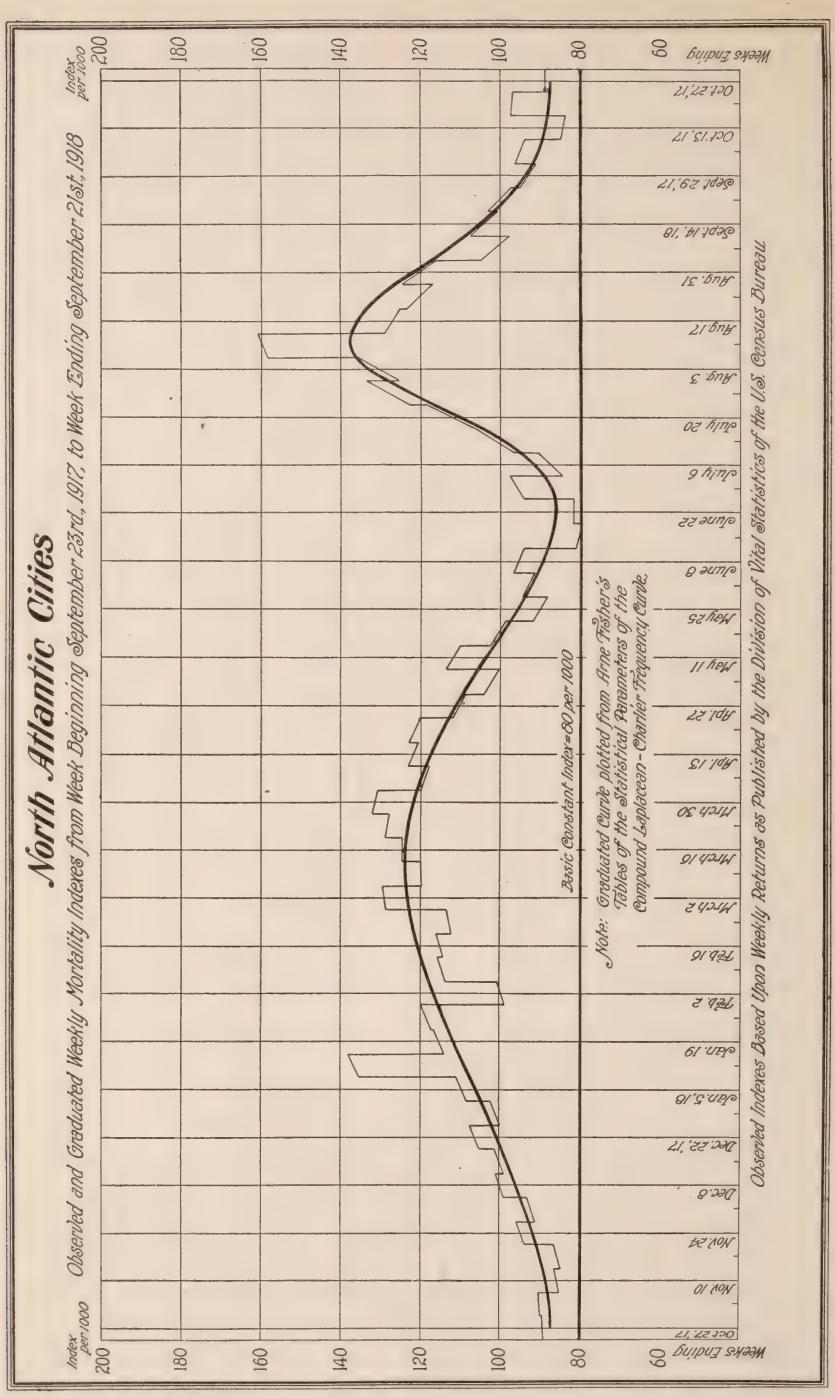
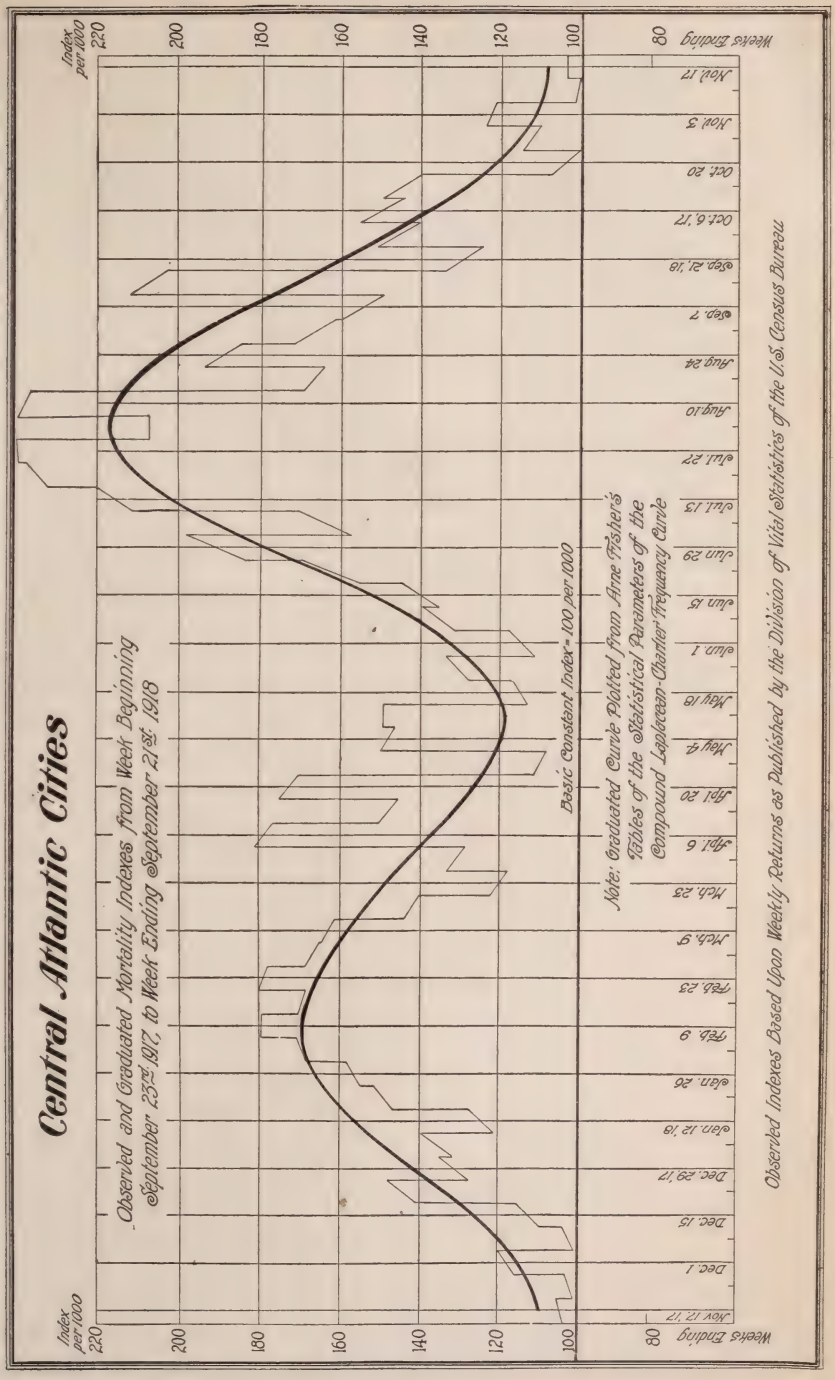

Infant Mortality Statistics
North Atlantic Cities
Observed and Graduated Weekly Mortality Indexes from Week Beginning September 23rd, 1917, to Week Ending September 21st, 1918
Index per 1000
Weeks Ending
Basic Constant Index=80 per 1000
Note: Graduated Curve plotted from Arne Fisher's Tables of the Statistical Parameters of the Compound Laplacean-Charlier Frequency Curve.
Observed Indexes Based Upon Weekly Returns as Published by the Division of Vital Statistics of the U.S. Census Bureau

CHART NO. 3.


Infant Mortality Statistics
Central Atlantic Cities
Observed and Graduated Mortality Indexes from Week Beginning September 23rd 1917, to Week Ending September 21st 1918
Basic constant index = 100 per 1000
Note: Graduated Curve Plotted from Arne Fisher's Tables of the Statistical Parameters of the Compound Laplacean-Charlier Frequency Curve
Observed Indexes Based Upon Weekly Returns as Published by the Division of Vital Statistics of the U.S. Census Bureau
Index per 1000
Weeks Ending
Nov. 17
Dec. 1
Dec. 15
Dec. 29 '17
Jan. 12 '18
Jan. 26
Feb. 9
Feb. 23
Mch. 9
Mch. 23
Apl. 6
Apl. 20
May 4
May 18
June 1
June 15
June 29
July 13
July 27
Aug. 10
Aug. 24
Sep. 7
Sep. 21 '18
Oct. 6 '17
Oct. 20
Nov. 3
Nov. 17

a saving of 800 infant lives, or 800 more infants would have died in New York City during the year ending September 28, 1918, had the average rate of the previous year continued. The table follows:

COMPARATIVE INFANT MORTALITY RATES
NEW YORK CITY.

Period	Reported Births	Reported Deaths, Ages Under 1 Year	Infant Death-Rate Per 1,000 Living Births
Oct. 1, 1916–Sept. 29, 1917	140,758	12,426	88.3
Sept. 30, 1917–Sept. 28, 1918	140,315	11,593	82.6

For Newark, N. J., we have been able to compare similarly the infant mortality rates of the two years, October, 1916, to September, 1917, and October, 1917, to September, 1918, with the following result:

COMPARATIVE INFANT MORTALITY RATES
NEWARK, N. J.

Period	Reported Births	Reported Deaths, Ages Under 1 Year	Infant Death-Rate Per 1,000 Living Births
Oct., 1916–Sept., 1917	11,826	986	83.4
Oct., 1917–Sept., 1918	11,863	1,118	94.2

The Newark infant mortality experience as reported shows a decided increase in the infant death-rate during the latter as compared with the former year, or an increase from 83.4 infant deaths per 1,000 living births during the year ending September, 1917, to a rate of 94.2 during the year ending September, 1918. The excess mortality of the latter year as compared with the former is represented by 128 deaths.

It is interesting to note that in Newark 37 more births were reported during the latter year than during the former, while in New York City 443 fewer births were reported during the year ending September, 29, 1918, than during the previous year. We have no way of determining whether or not birth reports are more complete in one city than in the other. It is quite possible, however, that both in New York and Newark, owing to scarcity of physicians and overwork of those remaining in civilian service, the birth reporting has been somewhat less complete during the latter than during the former of the two years under comparison.

The data now available do not permit of sufficiently extensive and accurate comparisons to warrant a final conclusion as to the effect which our participation in the war has had or may still have upon infant mortality. The weekly health index figures taken in the mass for the year ending September 28, 1918, do not indicate that there has been any increase. A few cities, like Newark, N. J., show a distinct upward trend, but the general tendency seems to have been downward. If this favorable indication, based upon approximate population estimates, is the fact the credit probably is very largely due to the vision of the Federal Children's Bureau in inaugurating a nation-wide campaign of education by making 1918 a Children's Year and offering the weighing and measuring campaign as something concrete which every administrative unit, large and small, could tie to, and which offered an excellent opportunity for the closest coöperation between governmental and voluntary organizations in the work of infant and child conservation. Wherever this campaign was carried on extensively it apparently had a marked and favorable effect upon infant life saving. The most competent observers have stated that similar efforts in England, New Zealand and elsewhere have yielded favorable results, and there is no good reason to believe that these child-conservation campaign in this country during the past year have been less successful. In Newark, N. J., the suggestions of the

CHART NO. 4.

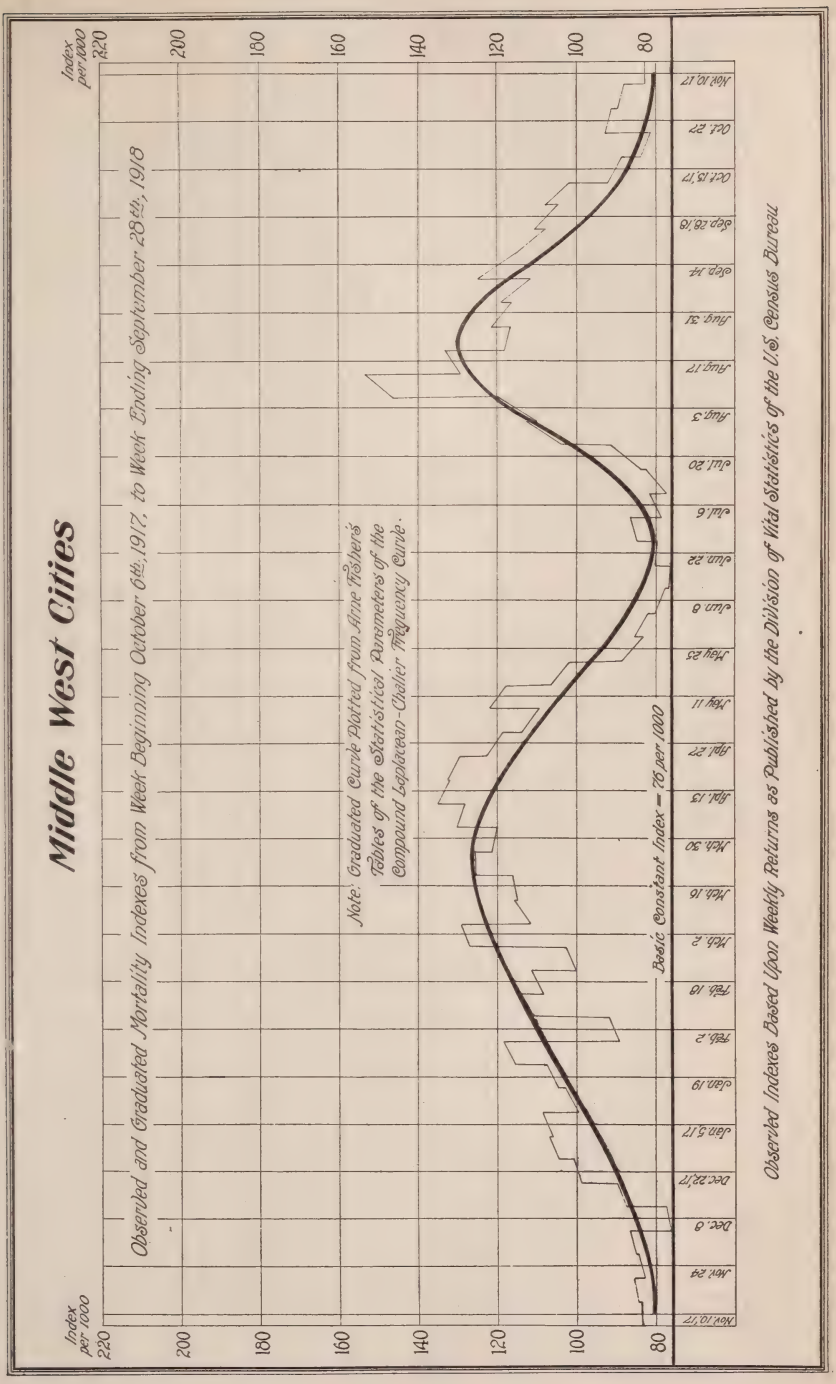
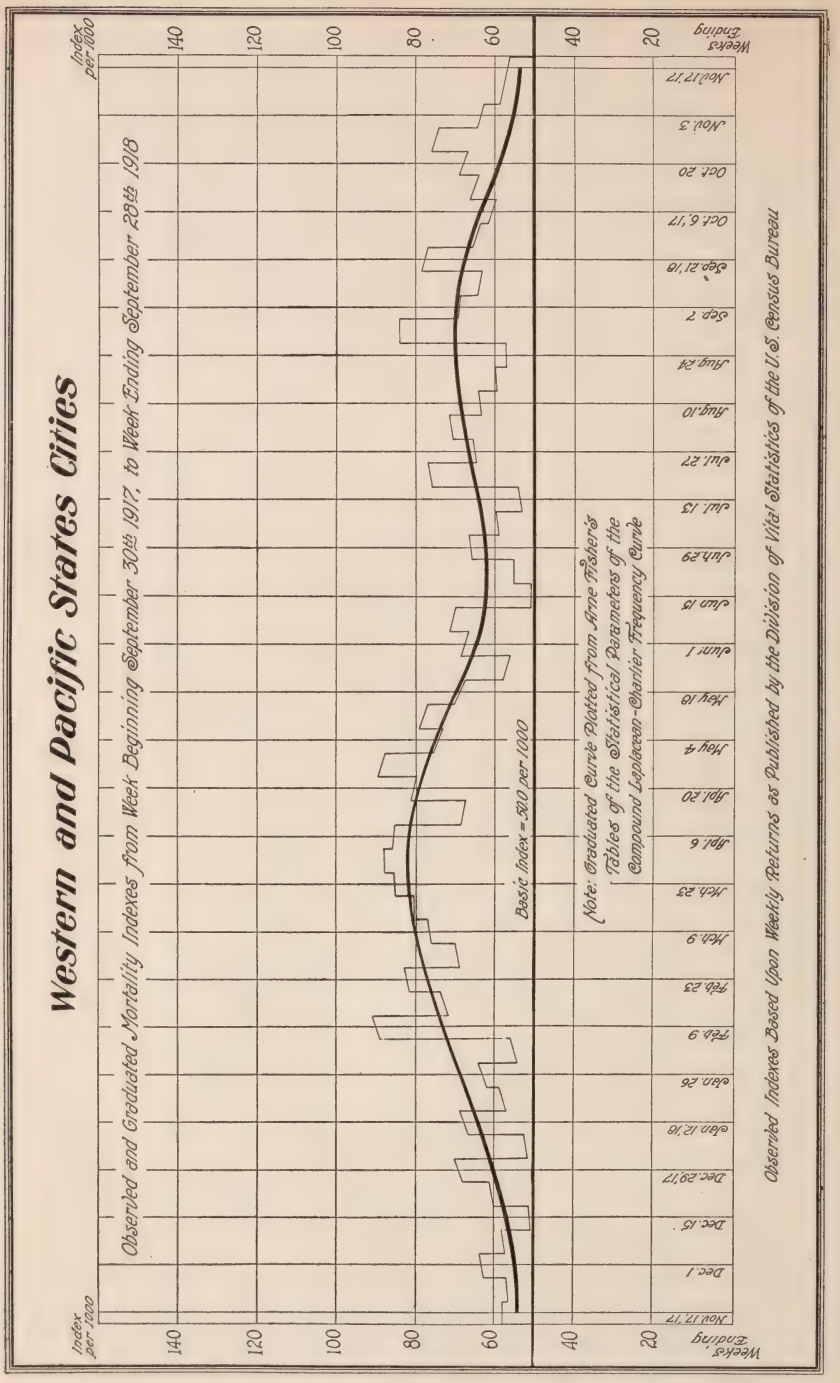

Infant Mortality Statistics
Middle West Cities
Observed and Graduated Mortality Indexes from Week Beginning October 6th, 1917, to Week Ending September 28th, 1918
Note: Graduated Curve Plotted from Irwin Fisher's Tables of the Statistical Parameters of the Compound Lexian-Charlier Frequency Curve.
Basic Constant Index = 76 per 1000
Observed Indexes Based Upon Weekly Returns as Published by the Division of Vital Statistics of the U.S. Census Bureau
Index per 1000
220
200
180
160
140
120
100
80
Nov. 10, '17
Nov. 24
Dec. 8
Dec. 22, '17
Jan. 5, '17
Jan. 19
Feb. 2
Feb. 2
Feb. 16
Mch. 2
Mch. 16
Mch. 30
Apl. 13
Apl. 27
May 11
May 25
Jun. 8
Jun. 22
Jul. 6
Jul. 20
Aug. 3
Aug. 17
Aug. 31
Sep. 14
Sep. 28, '18
Oct. 13, '17
Oct. 27
Nov. 10, '17

CHART NO. 5.


Infant Mortality Statistics
Western and Pacific States Cities
Observed and Graduated Mortality Indexes from Week Beginning September 30th 1917, to Week Ending September 28th 1918
Index per 1000
Weeks Ending
Basic Index = 500 per 1000
(Note: Graduated Curve Plotted from Arne Fisher's Tables of the Statistical Parameters of the Compound Laplacean-Charlier Frequency Curve
Observed Indexes Based Upon Weekly Returns as Published by the Division of Vital Statistics of the U.S. Census Bureau

Federal Children's Bureau were not acted upon until late in 1918 with the probable result that the infant mortality of that city for 1918 will be from 10 to 20 per 1,000 living births higher than during 1917.*

The influenza epidemic has already resulted in a large infant mortality. The effect of the epidemic is seen clearly in the 46 individual cities which report weekly to the U. S. Bureau of the Census and, of course, it is equally apparent in the infant deaths and death-rates by geographical groups of cities. Even in the North Atlantic cities, which include Boston, the effect of the epidemic was not reflected in the infant mortality rate prior to the week ending September 14, 1918. By October, first the epidemic was clearly reflected in the infant death-rates of several of the cities in the North Atlantic group.

Comparing the infant mortality during the nine weeks ending November 30, 1918, and the nine weeks ending December 1, 1917, we find that it was 70 per cent higher in 1918 in the North Atlantic cities; 72 per cent higher in the Central Atlantic cities; 61 per cent higher in the Southern cities; 33 per cent higher in the cities of the Middle West; and 41 per cent higher in the Western cities.

The details of this comparison are presented in the following table:

COMPARISON OF MORTALITY—UNDER 1 YEAR OF AGE

BY GROUPS OF CITIES.

DEATH-RATES PER 1,000 EST. POP. UNDER 1 YEAR OF AGE, REDUCED TO YEARLY BASIS.

Groups of Cities	Nine Weeks Ending Dec. 1, 1917	Nine Weeks Ending Nov. 30, 1918	Per Cent Increase 1918 over 1917
North Atlantic	90.2	153.2	70
Central Atlantic	117.5	202.4	72
Southern	84.9	137.1	61
Middle Western	89.3	117.8	33
Western	65.1	91.9	41

* Data now available show that for the calendar year 1918 the infant mortality rate of Newark (Infant deaths per 1,000 reported living births) was 104.7 against a rate of only 87.6 during the calendar year of 1917.

In New York City, Chicago and Newark, combined, the comparative infant mortality during these two nine-weeks periods was as follows:

RATES PER 1,000 EST. POP. UNDER 1 YEAR OF AGE, REDUCED TO YEARLY BASIS.

1917		1918		Per Cent Increase 1918 over 1917
Week ending	Rates	Week ending	Rates	
Oct. 6	99.2	Oct. 5	87.8	−11.5
13	58.8	12	106.2	+80.6
20	85.8	19	127.0	+48.0
27	85.8	26	204.7	+138.6
Nov. 3	73.1	Nov. 2	177.8	+143.2
10	77.0	9	128.8	+67.3
17	79.8	16	101.1	+26.7
24	84.0	23	83.7	− 0.4
Dec. 1	82.4	30	83.2	+ 0.9
Average (9 weeks)	80.8	Average	122.3	Average +50.1

This comparison shows that the highest rate was attained during the week ending October 26, 1918 (204.7), when the influenza epidemic apparently produced its maximum effect, directly as a cause of infant deaths and indirectly through the deaths of other members of the family with resultant lessening of infant care. By the week ending November 23, 1918, the infant mortality in these three cities had returned to the 1917 level and remained there during the week ending November 30.

The application of the mathematical methods to the data of the influenza epidemic will perhaps make possible a very accurate determination of the probable excess of infant mortality and adult mortality from this scourge, but this cannot be done until the epidemic is ended.

Through the various intensive studies of infant mortality by localities such as those already made by the Federal Children's Bureau in Johnstown, Pa., Manchester, N. H., Brockton, Mass., Montclair, N. J., Saginaw, Mich., New Bedford, Mass., and Waterbury, Conn.,* we are learning many interesting and valuable facts relating to the fundamental or underlying causes of infant mortality.

* See paper by Miss Julia Lathrop in this issue.

CHART NO. 6.

Infant Mortality and Temperature

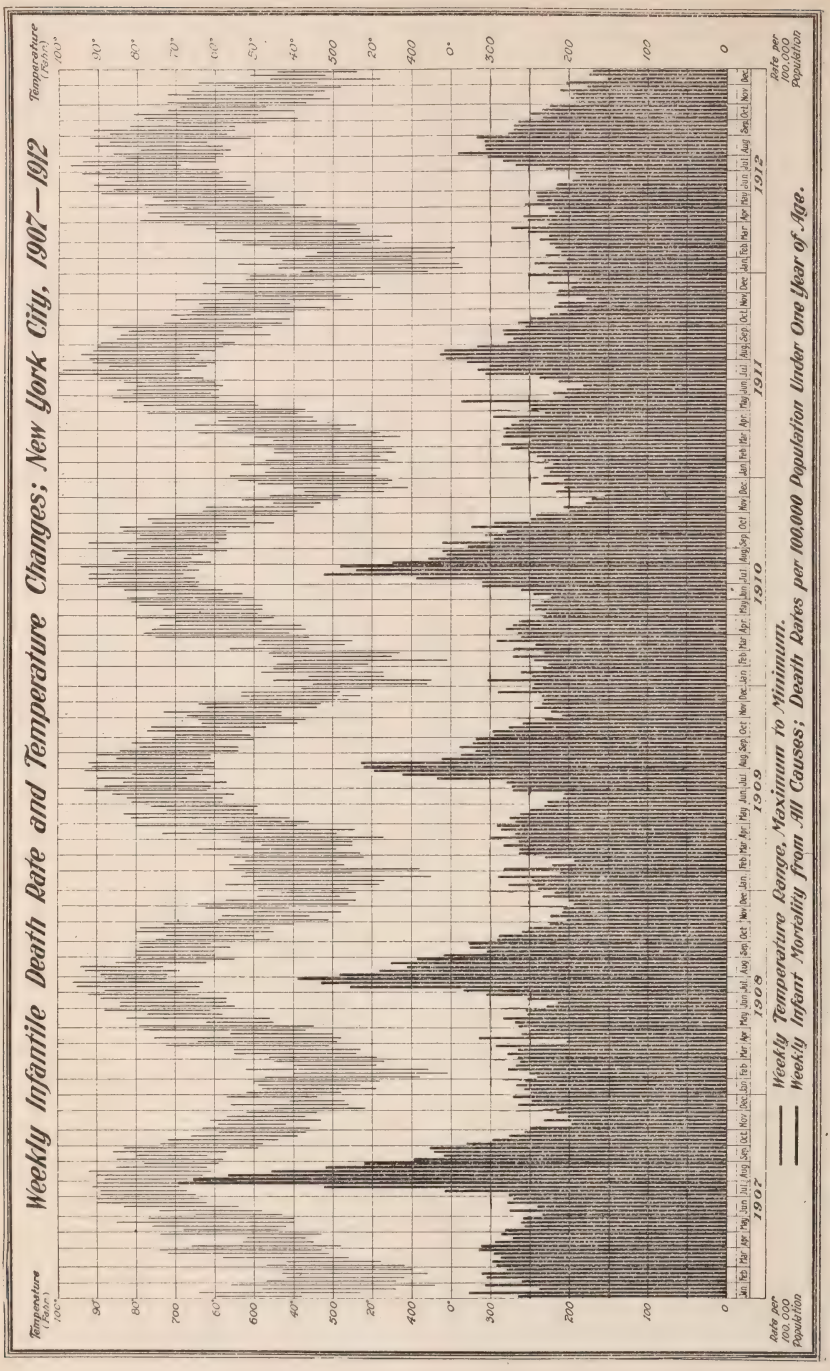
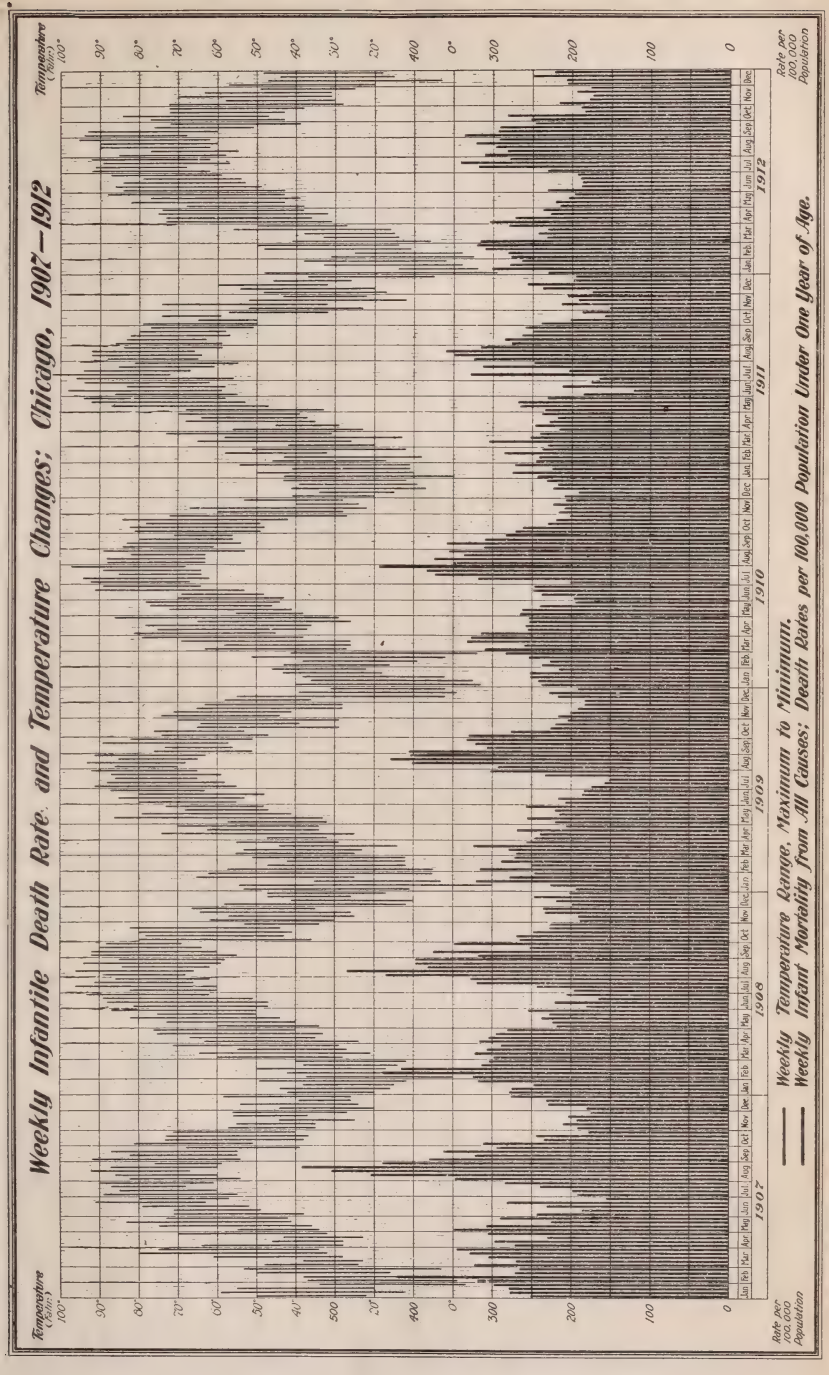


CHART NO. 7.


Infant Mortality and Temperature
Weekly Infantile Death Rate, and Temperature Changes; Chicago, 1907—1912
Temperature (Fahr.)
Rate per 100,000 Population
1907
1908
1909
1910
1911
1912
Weekly Temperature Range, Maximum to Minimum.
Weekly Infant Mortality from All Causes; Death Rates per 100,000 Population Under One Year of Age.

Equally valuable are the studies which are being made by the various child hygiene bureaus, departments or divisions of our state and municipal health organizations. The Cincinnati Social Unit Organization, in its intensive social work in the Mohawk-Brighton district of Cincinnati, represents one of several special activities which are throwing new light upon the many and complex problems of infant mortality.

The experiences of England, France, New Zealand, the United States and other countries seem to prove quite conclusively that the most immediately hopeful method of attack upon infant mortality is through education of the mother. Particularly should she be taught how properly to care for herself before and after the birth of her child, and the great importance of breast-feeding of the infant. In New Zealand where these methods have perhaps been carried farthest under the auspices of the Royal New Zealand Society for the Health of Women and Children, but in coöperation with the government, the infant deaths for the year 1917 were only 48.2 per 1,000 of living births. The war seems to have had little, if any, effect upon the infant death-rate of New Zealand, where, as in the United States, organizations for child-conservation were already existent when the war broke out and the continued activities of which have kept up a lively and wide public interest in the work.

The charts here presented through the courtesy of the Prudential Insurance Company of America, depend for their construction on a formula developed by Mr. Arne Fisher, who has made use of Laplacean-Charlier frequency curves, to establish a basic or inherent mortality rate. This may be due to "heredity and environment," and is practically independent of seasons or epidemics. A basic constant is established against which the actual weekly mortality is plotted. It is an interesting process, the details of which are somewhat too technical to be presented here in detail. —Editor.

◈

Control of Measles.—In controlling epidemic measles pupils who had the disease were excluded from school, and those having German measles were quarantined at home. Other school members in the family were allowed to attend school for fourteen days after the first exposure, but were then required to remain at home a week. No person can be released safely from quarantine until all symptoms, glandular enlargement in particular, have disappeared and he is free of all complications.—*Minn. Health Journal*, Oct. 17, 1918. (*M. T.*)

✻

Rochester's Clean Streets.—While a report on the Problem of Street Cleaning in the City of Rochester, N. Y., issued in October, 1918, by the Rochester Bureau of Municipal Research does not discuss the health phase of the problem, it is so full of valuable information on methods and costs that it should prove of value to those health officers who feel that there is a direct connection between clean streets and the public health and who, therefore, are urging reforms in the direction of more up-to-date street-cleaning methods. (*M. T.*)



PRESENT STATUS OF PUBLIC HEALTH ADMINISTRATION.

OSCAR DOWLING, M. D.,
President, Louisiana State Board of Health.

Presidential Address before Public Health Administration Section, American Public Health Association, at Chicago, Ill., December 10, 1918.

That public health administration is really a business is the message of Dr. Dowling. It will not be successful without business methods. These must include well-trained, full-time health officers and adequate appropriations.

I AM sure everyone will agree that when we entered the great war an era in our national history ended. From the retrospect we can see clearly that individualism controlled the nation; that individualism was the initiative back of our urban development, the "push" which made progress concrete in many lines—progress of which we are all justly proud.

Though some few had fully realized the futility of attempting to build a great nation on an individualistic foundation, it took the great social cataclysm of the war to bring home to us the narrowness, sordidness and selfishness of our policy and our aims. No nation with a background of selfishness could hope to have the "vision."

We had subconsciously the conviction that whenever it became necessary we would unite for any great national aim. This was not illogical. We have lived in reverence of the sacrifices and the struggles of our forefathers; we could do no less than they. There were times in this emergency when unity of purpose and action seemed doubtful, but no loyal American citizen ever had a skeptical moment as to the outcome. Money and patriotic service were given without stint, and had any universal self-sacrifice been imperative every man, woman and child would have stood the test. This does not include the disloyal, for they would not have counted in the supreme crisis. They would have been taught what to do and made to do it.

We have learned, though imperfectly, from this experience, that in solidarity there is strength, and that it is the only kind of force which counts in a national emergency. Correlative with this, we have learned the importance of an executive with full power. This is really what solidarity means. It implies selection of an executive and support of him in the measures agreed upon.

To apply the principle, in no line of activity was the demonstration of the need for coöperation and loyalty to organization more evident than in the health work; true of military and civilian service alike. The medical profession united for the common cause with a zeal which cannot be too highly commended. It will go down in history as a test of which any profession may well be proud.

If experience were needed to strengthen the lesson learned by the war the widespread prevalence of influenza gave it. I think of the days of our epidemic as one long nightmare. Urgent, pitiful calls for help by phone, by wire, by letters, through health officers and other officials, through friends and enemies, had to be met with the same answer—"We will do what we can. Our physicians (we had twenty-five in the field) are all on assignments. As fast as they can be

reassigned your call will be answered." Nurses, of course, were impossible after the first five or six days, so many having "gone down" with the disease.

These appeals are positive and evident proof of what we have known—the condition that exists in many states—the lack of dependable local health organization. In Louisiana the law says every parish and municipality shall have an organized health board with an executive, but with the appropriations made there are no full-time men, except in a few cities.

Fundamental then to improvement is an adequate appropriation which will make it worth while for a man worth while to undertake the business of the protection and the promotion of the health of the people within his jurisdiction. I think I have said to you before—you will pardon my saying it again—that health administration is a business proposition; haphazard effort accomplishes nothing. Moreover, it is a business which is vital to the well-being, physical and moral and social, of the community; and it may carry with some to know that the commercial value of health—therefore health organization—is very great.

Funds with which to operate are essential—without sufficient money no organization or institution can do successful work. In health activities the qualifications of those who direct are equally important. In every state, in every city, that I know of, fitness for the job is not considered. Men are chosen because of their party affiliations. If there are exceptions, they are very few. This policy, or habit of mind of the political factions, is particularly vicious when applied to the selection of health officials. The people's money may be wasted and not have untoward results; their commercial projects may lie in abeyance or fail and the consequences be not important, but if money appropriated for disease prevention and sanitary reforms is unwisely expended or thrown away in foolish extravagance, the results mean suffering and likely a higher death-rate. A man who is unworthy of the position of director of health, either because of his inability, or his lack of grasp of the situation, or his lack of conscience as to its responsibility, can not or will not expend appropriations wisely.

I need not say how great the opportunities are for graft in health work. I think I need not say how many persons may be paid for "putting in time" without giving value received. The temptations to permit this are very great. It is the train of evils which follows appointment by a political faction. There is another point. It is, that of all service, health service should be placed on a basis of fairness and justice. Can this be, when the director is desirous of pleasing those who gave him the appointment? I put it mildly; if I wanted to put it baldly, it would not be "desirous of pleasing" but "under obligation to obey orders."

The status of health work is determined by these two features. There are honest and faithful men who have overcome to a degree the difficulties, but the city or state which permits the employment of the executive health officer because of his "party" and the expenditure of funds by an incompetent person, needs but to look into its death roll and its morbidity rate to determine the character of the service rendered.

There is one other important reform which only a few states and cities have yet put into effect.

The antiquated, loose organization of several persons whose occupations and places of residence prevent their knowing the work in detail or the poli-

cies, yet whose appointment gives them power to approve or condemn, belong to an age that is past.

Political debts are paid by appointments—meant to be honorary. Again, in some activities—very few—this does not necessarily imply disaster. In health work it does. Taking the lesson from cities which have successfully tried the city manager plan, responsibility should be placed on one officer. He should be approved or condemned according to his success or his failure. The people should know where the responsibility rests.

Some states have already adopted the plan. They have done away with boards and have organized a department of health with distinct bureaus, the head of each being responsible for those under him. It is easy to tell in these states in what phases of work progress is made. It is easy to determine who fails. The apportionment of appropriations under this plan may be more equitable. The apportionment can be shifted to meet special emergency needs, and if thought advisable certain lines of work can be emphasized at any particular time.

In suggesting the limitations of our present system, almost universally in effect, I have given in a measure the status of work. The points mentioned are fundamental, and until this is recognized and the system changed I do not believe we can have effective health service.

PRESENCE OF A SPORE-BEARING ÆROBIC GAS-FORMING BACILLUS IN BALTIMORE CITY DRINKING WATER.

C. Leroy Ewing,
Health Department, Baltimore, Md.

In a paper that has the additional merit of brevity Mr. Ewing goes direct to his point, tells what he has seen and suggests that weather may be related to results.

In the customary practice of confirming the presence of B. coli by staining the agar slant there was occasionally found a spore-bearing organism resembling in general appearance the B. subtilis. Although by repeated tests this organism responded negatively to Gram's stain it was not until the publication of Meyer's article* that it was thought to be other than a contamination.

Shortly after the appearance of the above-mentioned article this organism was isolated and found to be identical with the one described by the author both in morphological and cultural characteristics. Upon staining by Gram's method the characteristic forms, the free spore, the spore-bearing cell and the regular rod-shaped, spore-free cell, were identified. Upon slant agar at 37° C. there appeared a characteristic veil-like growth which was very distinctive and of a grayish color. The upper half of the growth was filliform while the lower half was ameboid, with irregular edges. Upon nutrient agar at 37° C. for 24 hours the colonies were small, rather thin and grayish-white in color.

The colonies upon Endo's medium incubated for 24 hours at 37° C. were larger than those upon agar and were of

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the shape implied by the term umbilicate. There was a slight sheen around the colony in 24 hours, but at the end of 48 hours the colonies themselves had developed a metallic lustre resembling the B. coli very much in this respect. With lactose, dextrose and saccharose broths the gas formation in 24 hours was slight, but at the end of 48 hours all tubes yielded between 20 and 50 per cent of gas, with an average of about 30 per cent. Litmus milk was acidified and coagulated, the Voges-Proskauer reaction was positive, the indol reaction was negative, and no chromogenesis was noted on any medium used.

A pure culture of the organism was inoculated into the ear vein of a rabbit and the animal chloroformed about a minute later. The body was then incubated for 8 hours at 37° C., but no gas formation was noted at the autopsy and a microscopic examination of the various viscera failed to disclose the presence of any organisms. The organism, therefore, has not the effect of the anærobic Bacillus welchii or so-called gas bacillus.

In studying the occurrence of this organism in the water in relation to the number of examinations made and the average bacterial count at 37° C. and 20° C., the following table will indicate the number of isolations since the first of March when the study began.

Month 1918	No. of Examinations Made	Average		No. of Final Colon Tests	No. of Isolations of Spore-Bearer
		37° Count	20° Count		
March ..	135	10	107	22	10
April....	112	12	177	11	2
May....	133	32	33	15	2
June....	107	22	19	18	0
July	121	33	42	19	0
Aug....	110	25	12	16	0
Sept....	99	42	35	30	0
Oct.....	141	50	260	24	0
Nov.....	100	6	11	12	0

Conclusions.

1. The relationship of the number of isolations of the ærobic spore-bearer to the average bacterial count is not evident from the above table, but it has been a matter of interest to note that the isolations were effected in a season of much rain. In fact, there appeared to be a direct connection between the occurrence of a heavy rain and the appearance of this organism and it was remembered that all of the isolations were made immediately subsequent to a protracted period of rainfall. In October the rainfall was slight.

2. It is important to stain the agar culture of the colon bacillus in the final confirmatory test by Gram's method and carefully exclude the formation of spores. If this is not done the ærobic spore-bearing organisms might be mistaken for a rather large form of the colon bacillus, since it is Gram negative.

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Infant Mortality in New Zealand.—New Zealand has steadily decreased her infant mortality rate since 1907 until at the present time only one baby out of twenty dies before it is a year old. In the United States the rate is thought to be about one in eight.

The New Zealand figure has largely resulted from the efforts of the Society for the Health of Women and Children in New Zealand. The working theory of this Society has been that the life and health of the race as well as the babies depends upon the education of the mothers and future mothers.

The chief functions of the Society as shown by the 1913 report are:

1. To educate every woman to fit herself for the duties and responsibilities of maternity with special emphasis on the importance of breast feeding.

2. To acquire and make public accurate information and knowledge in matters affecting the health of women and children.

3. To employ especially trained and qualified nurses whose duty it will be to give advice and assistance gratis in matters pertaining to the health of women and children.

4. To promote legislative reforms in the interest of the health of women and children.

5. To coöperate with any organization working for a like purpose.—*Minn. Health Journal*, Dec. 19, 1918. (*M. T.*)

THE MILK INDUSTRY AND THE WAR.

CHARLES E. NORTH, M. D.,
New York City.

Read before Food and Drugs Section, American Public Health Association, at Chicago, Ill., December 9, 1918

Dr. North knows what he is writing about. No food industry is so much discussed as the production and marketing of milk. Everyone engaged in it places the responsibility somewhere else. Dr. North goes to the root of the matter with facts and figures, and shows lack of coöperation, coördination and organization.

THERE has been a tendency on the part of public health officials to believe that commerce and economics are matters outside of the field of public health work. Questions of price and cost have had but little place in the programs of the American Public Health Association. It is impossible, however, to deal properly with the public health aspects of the milk problem without considering also its economic relations. Quality cannot be considered apart from cost. Many health officers have failed to secure practical results from well-meant milk regulations because of imperfect knowledge of their economic effect.

There is no industry more complex in its organization, nor so filled with small but important details affecting its success, as the business of producing, collecting, handling, transporting, and distributing milk. In the short time at my disposal I can touch only on a few of the more important economic features of this business, but features which I believe every student of public health should consider in attempting to regulate the milk industry.

The magnitude of the milk industry is scarcely comprehended by the general public, and is understood by but few, even of those who are engaged in it. One of the ways for estimating the large position the dairy industry occupies in the economic structure of America is through a consideration of the number of dairy cows on farms in the United States. The U. S. Department of Agriculture has kept a record of the number of farm animals of all kinds, and as a part of this, of the number of cows used for milking purposes. These estimates are published in the Yearbook of the U. S. Department of Agriculture for 1917, and show the number of dairy cows on farms from the year 1870 to the year 1915, and the price per

COWS ON FARMS IN THE UNITED STATES.
(Yearbook U. S. Dept. Agric., 1917.)

Date	Number	Price Per Head	Value	Population of U. S.	Cows Per Capita
1870	10,096,000	$32.70	$330,175,000	38,558,371	.263
1880	12,027,000	23.27	279,899,000	50,155,783	.240
1890	15,953,000	22.14	353,152,000	62,622,250	.242
1900	16,292,000	31.60	514,812,000	75,994,575	.213
1910	20,625,432	35.29	727,802,000	92,757,702	.217
1915	21,262,000	55.33	1,176,338,000	.....	....
1918	23,284,000	70.59	1,643,639,000	105,000,000 Est.	.219

head and total value. For the year 1918 the number has also been estimated by the U. S. Department of Agriculture.

The growth and population of the United States during the same period should be compared in order to show whether the number of dairy cows has fallen behind or kept up with the growth in population. These figures are given in the table on page 259.

The quantity of milk produced for all purposes in the United States is estimated by the U. S. Department of Agriculture in Circular No. 85, Part II, entitled "Dairying." In this estimate the number of dairy cows on farms for 1917 is stated as 22,768,000, producing an average of 3,716 pounds each per annum. The quantity of milk produced is expressed in pounds, and the disposition of the milk through the various channels of trade, whether sold as fluid milk or as butter, cheese, condensed milk, or fed to calves or other farm animals is indicated in the following tabulation:

MILK PRODUCED IN UNITED STATES, 1917.
(U. S. Dept. Agric., Cir. 85, Part II, p. 15.)

Item	Quantity (Lbs.)	Per Cent
Total milk	84,611,350,000	100
Fluid milk	36,500,000,000	43.1
Butter	34,663,853,000	41.0
Cheese	4,200,000,000	5.0
Condensed milk	2,437,500,000	2.9
Ice Cream	3,150,000,000	3.7
Calves	3,666,000,000	4.3

In the above table it is surprising to note what a large percentage of the total milk produced goes into the manufacture of butter, the quantity being very nearly as much as the quantity of milk sold in fluid form as milk or as table cream.

(The value of the milk and milk products compared with the value of other foods will be shown in one of the tabulations further on.)

Thirty-two per cent of the population of the United States is engaged in agriculture. If the total population at present is 105,000,000, this means that 33,600,000 persons are on farms. It is estimated (by U. S. Census Bureau) that about one-third of these are on dairy farms, or about 11,000,000, and that 500,000 persons in addition are employed at shipping stations and in cities in the handling and distribution of milk and its products.

VALUE OF FARM PRODUCTS 1918.
(Annual Report, Secretary of Agriculture, 1918.)

Product	Value	Per Cent of Total
Corn	$4,563,668,680	18.4
Milk	2,360,120,000	9.5
Wheat	2,177,840,000	8.8
Pork	1,848,000,000	7.4
Oats	1,274,296,510	5.2
Beef	828,750,000	3.3
All other products	11,647,325,810	48.4
Total value all products	$24,700,000,000	100.0

One of the first effects of the war on the dairy industry was the demand of European countries for American dairy products. The products exported necessarily were required to be in their most imperishable form, and therefore consisted chiefly of cheese, butter, and condensed milk. From the U. S. Food Administration figures have been secured which show the number of pounds of milk

EXPORTS TO ALL ALLIES.
(Figures Expressed in Lbs.)

	1911–12	1912–13	1913–14	1914–15	1915–16	1916–17	1917–18
Cheese	3,823,855	638,001	550,608	50,562,332	38,080,351	55,404,366	42,603,336
Butter	1,451,995	60	721,520	3,336,565	6,325,098	20,959,016	15,898,511
Condensed milk	1,202,007	9,715	342	7,373,884	95,455,094	148,157,801	502,290,893

products exported from the years 1911 to 1918. These figures are shown in the table at the foot of page 260.

The Yearbook of the U. S. Department of Agriculture also publishes a statement of exports of dairy products, which while it does not correspond exactly to the statement of the Food Administration, yet shows approximately the same enormous increase in exports of condensed milk, cheese, and butter, during the years 1915, 1916, and 1917, as compared with the years previous to the war. These are shown in the following table:

EXPORTS OF UNITED STATES 1911 TO 1917.
(U. S. Dept. Agric. Year Books, 1913–1917.)

	1911	1912	1913	1914	1915	1916	1917
Butter	$1,059,432	$1,468,235	$872,804	....	$2,392,480	$3,590,105	$8,749,170
Cheese	1,288,279	898,035	441,186	....	8,463,174	7,430,098	15,244,364
Milk con'd	936,105	1,651,879	1,432,858	....	3.066,642	12,712,952	25,129,983
Other incl. cream	.....	244,913	474,055	....	343,583	524,426	283,467

Another effect of the war was the increase in the cost and selling prices of dairy products. This increase was shared by all other food products in varying degrees. A study of food prices shows much variation in the local markets of the country, but in every instance the prices for milk, while they have increased, have shown increases which are less than

FOOD PRICES INCREASE.
(New York Prices Current, Nov., 1914–Nov., 1918.)

Item	1914	1918	Per Cent Increase
Eggs	.23	.85	269
Corn	.72	1.72	139
Sugar	3.32	9.35	181
Beef	.18	.48	166
Cheese	.14	.46	128
Butter	.27	.77	226
Milk	.09	.17	88

the increases in the prices of other food products. Among the many tabulations available for such comparisons may be selected the prices for some of the more important food staples in the New York City market for the month of November in the years 1914 and 1918 and the percentage of increase of each. These are indicated in the table of food prices increase.

In a report of the Bureau of Statistics of the U. S. Department of Labor the increase in retail prices of food from July 15, 1913, to July 15, 1918, expressed in percentages of increase are shown in the table below in this column.

In this tabulation 100 per cent is taken as the price for July 15, 1913. All amounts above 100 per cent indicate the increase up to July 15, 1918; thus lard increased 106 per cent, flour 103 per cent, corn meal 123 per cent. The increase in the price of milk was 48 per cent,

RELATIVE RETAIL PRICES OF FOOD.

Article and Unit		July 15, 1913	July 15, 1917	July 15, 1918
Potatoes	lb.	110	246	229
Cornmeal	"	98	195	223
Lard	"	101	174	206
Flour	"	101	220	203
Bacon	"	104	159	194
Round steak	"	104	137	181
Ham	"	104	147	181
Pork chops	"	103	151	180
Hens	"	102	131	178
Bread	"	100	176	174
Rib roast	"	102	130	168
Sugar	"	100	166	167
Sirloin steak	"	104	129	166
Milk	quart	99	125	148
Eggs	dozen	87	122	142
Butter	lb.	91	120	137
All articles combined		100	146	167

while the increase in all articles combined was 67 per cent. This means that milk alone increased 19 per cent less than all other food articles combined.

The cost of producing milk is a matter of vital interest not only to the milk producer, but also to the milk distributor and milk consumer. The cost of production must be paid in order to keep the producer in business. The dealer and the consumer must keep the producer in business since he is the sole source of the milk supply. Numerous efforts have been made to determine the cost of milk production both by amateurs and by professional investigators. One has only to consider the enormous variations in every cost item entering into the list of milk production costs to recognize that as a matter of fact each dairy farm is a law unto itself. One has not to go far to discover dairy farms lying side by side, one of which is doing business at a profit, while the other is doing business at a loss. Not only does the character of the land itself, but the character of the cows and the business ability of the dairy farmer modify the items of cost. On the dairy farm the total volume of milk produced bears the same relation to the cost per quart that the total volume of business in other lines of industry bears to unit costs. Large producing cows produce milk at less cost than small producers. A large dairy herd produces milk at less cost than a small dairy herd. The purchase of supplies in large quantities reduces the unit of the same.

The best attempt that has been made to determine the cost of milk production is embodied in the work of agricultural colleges which have made studies of groups of representative dairy farms. The tabulation by the agricultural colleges of the cost items on the farms studied has furnished a basis for an estimate of the cost of producing milk on the kind of dairy farm which represents the average of farms producing milk for large city markets. From a considerable group of such studies conducted by the agricultural colleges of the states supplying milk to the City of New York, Prof. G. F. Warren of the State Agricultural College of New York at Cornell University has combined all statistics into a single formula representing the cost items entering into the production of 100 pounds of milk. The Warren formula is as follows:

COST ITEMS TO PRODUCE 100 LBS. OF MILK.

33.79 lbs. of grain
43.3 lbs. of hay
10.8 lbs. of other dry forage
92.2 lbs. of silage
8.3 lbs. of other succulent feed
3.02 hours of labor

In using the above formula, one pound of dry forage is considered equal to two-thirds of a pound of hay, making the hay and dry forage together equivalent to 50.50 pounds of hay. Other succulent feed is considered the equivalent of silage, so that the silage and succulent feed together are equal to 100.5 pounds of silage.

All of the cost items above mentioned are considered to amount to 79.7 per cent of the entire cost of milk production, the remaining 20.3 per cent being for bedding, pasture, use of buildings, cans, depreciation of cows, milk hauling, insurance, ice, salt, and numerous other miscellaneous expenses, minus deductions for the value of calves, manure, feed bags, etc.

Using the above formula, and applying the prices for the month of October, 1914, and the month of October, 1918, the cost of producing 100 pounds of milk in 1914 and 1918 is shown in the following tabulation:

COST OF PRODUCTION 100 LBS. MILK.
(Average Butterfat 3.8.)

Item	1914	1918
Grain	.513	1.0261
Hay and other dry forage	.3024	.4295
Silage	.2508	.4137
Labor	.6048	1.0087
Miscellaneous	.4177	.7192
Total	2.0888	3.5962
Per quart	.0454	.0782

In the above tabulation it appears that in 1914 the cost of producing 100 pounds

of milk was $2.08, while in 1918 it was $3.59, or .045 a quart in 1914 and .078 in 1918. This increase in the cost of production is one of the direct effects of the war through increases in the cost of feeds and labor.

There have been marked increases also in the cost of milk distribution during the war period. Machinery and all supplies have increased in price and there has been a large advance in wages. The bookkeeping of the distributing companies is not standardized, and consequently expenses are not kept under the same cost items. A survey of the expense accounts of large milk companies in New York City, made by the commissions which have investigated the same, showed that expenses can be grouped under a few general headings which are sufficient to indicate the principal costs and the increases during the war period. These items appear in the following tabulation:

COST OF MILK HANDLING AND DISTRIBUTION, NEW YORK CITY.

Item	1915	1918
Freight	.0093	.0120
Handling	.0120	.0260
Distribution	.0238	.0404
Administration	.0032	.0040
Total per quart	.0483	.0824

The above table shows the cost of handling and distribution in 1915 to have been .0483, and in 1918 .0824 per quart.

The New York Milk Conference Board, an organization consisting of dealers in milk and milk products in New York City and New York State, has compiled statistics for the war period showing the prices paid to the producer and charged to the consumer, and the difference, or so-called differential, being the money available for the use of the milk distributor. These figures are shown in the following tabulation:

PRICES PER QUART OF MILK, NEW YORK MARKET.

Date	Paid Producer	Charged Consumer	Differential
1915	3.66	9.0	5.34
1916	3.98	9.33	5.35
1917	5.82	11.96	6.14
1918	7.13	14.50	7.28

There is no subject of greater interest to students of milk economics than the differentials or spreads existing in different milk markets. For example, in Ottawa, Canada, the difference between the price paid to the milk producer and the price charged to the milk consumer is $3\frac{1}{2}$ cents per quart. In Philadelphia the difference is $4\frac{1}{2}$ cents per quart. In New York City it is $7\frac{1}{2}$ cents, and in Boston $7\frac{3}{4}$ cents. In other cities in the south, middle west, and far west, the same remarkable variations can be found.

A comparison of prices paid to the producer will show that these prices do not vary nearly to the same extent that the prices charged to the consumer vary. It is impossible to avoid the conclusion that the great variation in these differentials must be due to local conditions affecting the cost of milk distribution, the chief of which is the volume of milk carried by the individual retail wagons.

In Ottawa and Philadelphia wagons carry from 450 to 500 quarts of milk each, while in New York City the average is less than 275 quarts. The character of the houses in some cities may make it easier for the milk driver to reach the family trade, so that certain physical advantages are given to the milk distributor, but in addition to this there is no question that centralization and consolidation of delivery systems and, in fact, of the entire milk delivery business would reduce delivery costs and other differentials to their lowest terms.

As an example of such economy, it is of interest to note the number of wagons

hauling milk in New York City. Of the total supply of about 2,000,000 quarts daily, about one-third is sold as bottled milk and delivered to households by retail wagons. The most recent figures available from the Department of Health are shown in the following tabulation:

COLLECTIVE HAULING, NEW YORK CITY.

Bottled milk (qts.)	704,318
Retail licenses	4,978
Loads if all wagons used (qts.)	142
Average New York load (qts.)	250
Full load (qts.)	428
Wagons in use	2,800
Wagons at full loads	1,640
Wholesale cans daily	22,400
Wholesale wagons licenses	1,522
Full loads (cans)	75
Wagons needed	300

From the above figures, New York City requires only a little more than one-half the retail wagons now in use, and while the number of wholesale wagons in use is not indicated, it seems probable from the number of licenses that a much larger reduction in the number of wholesale wagons would be possible.

The milk producer cannot escape criticism so long as an excessive number of farmers' wagons are used to haul milk to country shipping stations. A short survey of only eleven shipping stations made by the Mayor's Committee on Milk in 1917 showed the following conditions:

COLLECTIVE HAULING, COUNTRY.

Shipping stations	11
Farmers' wagons	453
Cans milk	1,181
Cans per wagon	3
Cans per wagon full load	30
Wagons needed	44
Saving in wagons	409

At the same rate, farmers' wagons for total New York supply would be 12,500. Wagons needed 1,250.

It is clear from the above figures that about ten times as many farmers' wagons were hauling milk to the eleven shipping stations observed as were necessary, and the cost of this labor and time is an unnecessary charge on the milk consumer. Consolidation of many other features affecting the cost of milk production can be brought about through better organization of the milk producing business.

New York City is the largest single market for foods in America. The quantity of food consumed by the city was tabulated by the New York Merchants' Association in 1913. This, while not as large as it should be to represent the present time, indicates in a general way the proportion of the different foods consumed.

Food Product	Quantity	Value	Percentage of Whole Value
Beef, and other meat products, lbs.	880,000,000	$413,600,000	34%
Milk, qts.	800,000,000	120,000,000	10
Butter, lbs.	139,000,000	111,200,000	9.2
Cheese, lbs.	28,956,009	14,478,004	1
Eggs, doz.	150,501,630	127,926,385	10
Bread, loaves	900,000,000	90,000,000	7.5
Sugar, lbs.	400,000,000	40,000,000	3.3
Poultry, lbs.	100,000,000	50,000,000	4.1
Potatoes, lbs.	750,000,000	30,000,000	2.5
Fish, lbs.	150,000,000	30,000,000	2.5
Coffee, lbs.	45,000,000	13,500,000	1
Tea, lbs.	5,000,000	3,000,000	.2
Cereals	.....	5,000,000	.4
Canned goods	.....	150,000,000	12.5
Total		1,195,704,389	

A study was made by Prof. Henry C. Sherman, Professor of Food Chemistry, Columbia University, New York City, of 92 representative families in New York City as to the quantity and value of foods consumed daily. This study lasted for a sufficient period to represent the average quantity of various foods consumed annually. The results of these studies appear in the following table:

DIET RECOMMENDED BY PROF. HENRY C. SHERMAN.

Food	Average Expenditures American Family	Expenditures Recommended
Meat—fish	35%	12%
Eggs	6	6
Milk	10	30
Cheese	1	3
Butter and other fats	9	11
Bread and cereals	15	13
Sugar	5	3
Vegetables, fruits	13	17

It is interesting to compare the percentage of value of foods used by the entire City of New York and of the value of foods used in the 92 representative

families studied by Professor Sherman. These comparisons are shown in the following table:

PERCENTAGE OF FOOD COSTS.

Item	New York	92 Representative New York Families
Meat	38%	32.7
Eggs	10	5.2
Milk	10	9.6
Cheese	1	.9
Butter	9.2	9.5

In a previous table showing the value of farm products in the year 1918 it appears that the value of the milk produced is 9.5 per cent of the total value of all farm products. This includes not only fluid milk, but also milk made into butter and cheese. In New York City as well as in the private families investigated the milk bill alone amounted to about 10 per cent, and butter and cheese together to another 10 per cent, making the total bill for dairy products about 20 per cent of the annual food bill. This increase is largely accounted for by the extremely high cost of marketing dairy products, which results in approximately doubling the price paid to the producer.

Professor Sherman, as a result of extensive studies of the requirements of the human body, recommends that the diet used by the average family in New York should be altered by a reduction of the meat bill from 35 per cent to 12 per cent, and an increase of the milk bill from 10 per cent to 30 per cent, with slight increases in the quantity of butter and cheese consumed. This means that the quantity of fluid milk used by the city should, in his opinion, be multiplied by 3 to provide a diet that would be most healthful and economical, while the meat bill should be divided by 3.

Prof. Graham Lusk, Professor of Chemistry in the Cornell University Medical College, in his testimony before the Mayor's Committee on Milk, says: "No family of five should buy meat until they have bought at least three quarts of milk. . . . Milk is the cheapest form of protein you can get. It is the most complete and sufficient food that can be had. Around the dairy farms centers the proper nutrition of a nation."

Dr. L. Emmett Holt, Professor of Diseases of Children in the College of Physicians and Surgeons, New York City, stated at the same hearing: "For infants during the first year a quart of milk a day is necessary. For the second year, a pint and a half. . . . For children between the ages of two and six years, the daily ration of milk should be one pint per day as a minimum. . . . I should think that after six years of age up to twelve or thirteen years, a pint of milk a day ought to be allowed to all children."

Prof. H. C. Sherman, testifying before the same committee, stated: "We cannot expect a good community dietary if that community uses less than one-half quart of milk per capita per day. . . . The milk has exceptional value as a food for growth, due to the so-called vitamines. . . . It is the most important single food for adults."

Prof. E. V. McCollum, Professor of Chemistry in the School of Hygiene and Public Health of Johns Hopkins University, has published the statement: "Peoples who have made liberal use of milk as food have attained greater size, greater longevity, and have been much more successful in rearing their young . . . and have achieved much greater advancement in literature, science, and art. . . . It has become evident that milk is the greatest factor of safety in our nutrition. . . . It is certain that we could not have accomplished what we have had we dispensed with milk as food. . . . There is no substitute for milk, and its

use should be distinctly increased instead of diminished, regardless of cost. . . . Milk is just as necessary in the diet of the adult as in that of the growing child."

At its meeting held in Chicago, December 8, 1918, the National Commission on Milk Standards appointed by the New York Milk Committee received reports concerning the prices paid for milk to the producer and prices charged to the consumer, the quantity of milk sold, and mortality statistics from Boston, New York, Philadelphia, Wilmington, Baltimore, Toronto, Indianapolis, Chicago, Jacksonville, and other cities, and passed the following resolution:

(1) That the price of milk to the consumer from 1914 to 1918 has in general increased from fifty to one hundred per cent.

(2) That while the quantity of milk consumed has fluctuated in the cities from which reports have been received, yet generally at the present time it is not less than the normal or usual supply.

(3) That there has been an improvement in infant mortality and a lessening in diarrhœal diseases under two years of age and that this improvement has not been checked by the advance in the price of milk between 1914 and 1918.

(4) That evidence presented to the Commission indicates the seriousness of under-nourishment or malnutrition among children of school age. The Commission believes that the cause of this is an improperly regulated diet, due to some extent to poverty, and to a larger extent to lack of appreciation of the value of milk as compared with other foods.

(5) That the proportionate increase in the price of other foods generally has been greater than the increase in the price of milk.

(6) That at present retail prices milk is the most economical animal food that can be purchased.

(7) The Commission recognized that the results of nutrition investigations during the past ten years have demonstrated that satisfactory nutrition is to be secured only through the employment of certain combinations of foods. It recognizes that milk, eggs and green leafy vegetables are so constituted as to correct, when taken in liberal amounts, the deficiencies from the dietary standpoint of cereal products, peas, beans, tubers, edible roots and meats. Since good nutrition cannot be secured on diets from which milk, eggs, and the leafy vegetables are absent, it is of the greatest importance that the use of these classes of foods should be extended.

It is further recognized that among these, milk is the most effective and most economical, and that milk is the one food for which there is no satisfactory substitute.

If the quantity of milk recommended by Professor Sherman, Professor Lusk, and Doctor Holt were used by the people of New York City, the results would be as follows:

Age	Population	Quarts of Milk Which Should Be Used a Day	
		Each	All
Under 1 year	130,500	1	130,500
1–2 years	126,700	(1½ pt.) ¾	95,025
2–6, 6–14 yrs.	1,387,900	(1 pt.) ½	693,950
Over 14 years	4,092,392	(1 glass) ¼	1,023,098
Total	5,737,492		1,942,573

Milk which New York City should drink—1,942,573 quarts daily.

Actual amount used for drinking is probably about 707,486 quarts daily.

If we compare the present milk supply of the United States with the milk supply that would be required under the recommendations of our leading food chemists, the increase in the size of our dairy herds that would be made necessary becomes apparent. This is shown in the following table:

Item	Pounds Milk Used at Present time	Quantity Recommended
Fluid milk	36,500,000,000	98,550,000,000
Butter	34,663,853,000	44,567,811,000
Cheese	4,200,000,000	8,400,000,000
Condensed milk	2,437,500,000	2,437,500,000
Ice cream	3,150,000,000	3,150,000,000
Calves	3,666,000,000	3,666,000,000
Total	84,611,350,000	160,770,811,000
Total dairy cows	23,284,000	44,204,000
Increase cows required	20,920,000	

This means an increase of over 20,000,000 dairy cows in the United States, or almost double the present number.

If the above figures are correct, at the

present time it is physically impossible for the people of the United States to obtain the quantity of milk for drinking purposes which is recommended by the food chemists. The number of dairy cows necessary to produce the same cannot be obtained for many years to come. The value of milk as a food and the growing demand justifies the dairy industry in looking forward to an enormous future development. To make this great food product available and to protect its sanitary character will require that state and municipal health officers have an intelligent understanding of economic conditions as well as of the safeguards necessary for the protection of the public health.



OPPORTUNITIES FOR CONTACT INFECTION.

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This diary of one day's potential contact infection opportunities ought to have its lesson for everyone, health officer or private citizen. It is a story that fits into every man's life and its moral, "Watch and Wash your hands," is an admirable health slogan.

AN outstanding feature of the influenza pandemic is the remarkable infectivity of the disease. There is scarcely a community in this country that has escaped its visitation. Once introduced it has spread from person to person with truly amazing speed. This is partially accounted for by the very short incubation period, from two or four days. This furnishes new foci of infection at a much more rapid rate than is the case with certain other infectious diseases which require from five to twenty days to develop. So much for the progress of the disease, once rooted in the individual, but just how the infection is passed about so widely is a matter that is less easy to explain. Are the causative organisms transmitted from person to person by contact, or are they mixed with dust from saliva-laden streets and scattered broadcast by the wind? The trend of modern thought is to regard contact or hand to mouth transmission as by far the more important. It is only at such times as we have just experienced that there is a tendency to question the adequacy of this method. Dust holds out certain allurements because of its ubiquity and there is just enough of the mysterious associated with air-borne infection to be in keeping with a disease about which we know so little. Lest we wander too far from the truths which modern public health experience has taught us the following inventory of opportunities for contact transmission of disease is offered.

The writer recorded his chances of acquiring infections for an entire day. This list undoubtedly is typical for the average city dweller.

For the purpose of emphasis the items are recorded in detail:

1—Touched bathroom door knob.
2—Touched toilet seat.
3—Touched toilet flush handle.
4—Touched chain on light.
5—Touched faucet handle. (Washed hands.)
6—Touched bathroom doorknob.
7—Touched knob of outside door.
8—Received paper from newsboy.

9—Grasped handle of trolley car.
10—Received transfer from conductor. (Gloves on hands from this time till entering restaurant.)
11—Grasped back of chair in restaurant.
12—Touched tumbler with hand.
13—Touched tumbler with lips.
14—Touched teaspoon with hand.
15—Touched teaspoon with lips.
16—Touched plate with hand.
17—Touched second teaspoon with hand.
18—Touched second teaspoon with lips.
19—Touched coffee cup with hand.
20—Touched coffee cup with lips.
21—Touched cream pitcher with hand.
22—Touched cereal dish with hand.
23—Touched toast with hand.
24—Placed toast in mouth.
25—Touched shredded wheat with hand.
26—Placed shredded wheat in mouth.
27—Touched second piece of toast with hand.
28—Placed second piece of toast in mouth.
29—Used handkerchief to nose.
30—Handled napkin.
31—Wiped mouth with napkin.
32—Touched back of chair.
33—Received check.
34—Received change from cashier.
35—Opened door.
36—Closed door. (Put on gloves.)
37—Used handkerchief to nose.
38—Handled toilet room door at office.
39—Touched swinging doors on toilet.
40—Touched toilet seat.
41—Touched flush handle.
42—Touched swinging doors on toilet. (Washed hands.)
43—Touched toilet room door knob.
44—Used handkerchief to nose.
45—Shook hands with visitor.
46—Received paper from visitor.
47—Used handkerchief to nose.
48—Shook hands with visitor.
49—Shook hands with second visitor.
50—Opened toilet room door.
51—Pressed toilet flush with hand.
52—Turned water faucet. (Washed hands.)
53—Opened lunchroom door.
54–55–56–Received three dishes from attendant.
57—Handled chair.
58—Handled water tumbler.
59—Carried glass to lips.
60—Put spoon in mouth.
61—Put fork in mouth.
62—Opened post-office door.
63—Licked postage stamp handed out by clerk.
64—Opened post-office door.
65—Opened office door.
66—Placed hand on rail.
67—Opened office door.
68—Grasped handle on trolley car.
69—Opened door of bank.
70—Grasped pen used by public.
71—Received bills from cashier.
72—Opened bank door.
73—Opened toilet room door.
74—Closed swinging doors.
75—Touched flush handle.
76—Opened swinging doors.
77—Touched faucet. (Washed hands.)
78—Opened toilet room door.
79—Pressed handle on drinking fountain with hand.
80—Handled toilet room door.
81—Pressed toilet flush.
82—Turned faucet handle. (Washed hands.)
83—Opened toilet room door.
84—Received newspaper.
85—Received change from newsboy.
86—Grasped car handle.
87—Received change from conductor. (Put on gloves.)
88—Opened restaurant door.
89—Handled chair.
90, 91, 92, 93—Handled knife, fork, spoon, tumbler,
94, 95, 96—Touched spoon, fork and tumbler to mouth.
97—Handled water pitcher.
98—Touched napkin.
99—Wiped mouth with napkin.
100—Grasped chair.
101—Used handkerchief to nose.
102—Handled cake.
103—Put cake in mouth.
104—Grasped chair.
105—Opened door.
106—Used handkerchief to nose.
107—Used toothpick, bringing hand to mouth.
108—Opened door to house.
109—Received paper from friend.
110—Friend laughed boisterously within spray range.
111—Used handkerchief to nose.
112—Closed bathroom door.
113—Pressed toilet flush.
114—Turned faucet handle. (Washed hands.)
115—Opened bathroom door.
116–117—Shook hands with two people.
118—Touched light chain.
119—Passed candy to mouth with hands.

The above list shows 119 possibilities during the course of a day for acquiring

infected material either on the hands, mouth or nose. We may sum up these incidents as follows:

Touching hands to articles that were or might have been touched by others immediately before . . 87
Shaking hands 5
Carrying to mouth articles possibly infected by others 17
Hand brought in contact with mouth directly 2
Hand brought in contact with nose indirectly through handkerchief 7
Chances of acquiring infection through laughing of others 1
Chances of acquiring infection through sneezing of others 0
Chances of acquiring infection through coughing of others 0
Chances of acquiring infection through kissing . . . 0

There were 92 opportunities for infecting the hands directly with other hands or with articles just handled by others. Mere infection of the hands is, of course, immaterial. It is the carrying of the infected hand to the mouth or nose, which constitutes the danger. In the present instance the hand was brought in contact with the mouth or nose, either directly or through food, or through handling a handkerchief 14 times, 7 times in the case of the mouth and 7 in the case of the nose. This represents the experience of one to whom keeping hands out of the mouth is second nature. But what of the person who is unconscious of the hand to mouth habit? There is no question but that the hand travels to the mouth much more frequently with the average individual.

There were seven opportunities of infecting the nose with the hand through the medium of the handkerchief. The influence of weather and climate on infection is suggested here by the fact that the colder or more changeable the weather the more frequently does the nose require attention and the opportunities for infecting the nose from the hand increase in proportion.

In making up this record of articles touched by the hands, it should be emphasized that only those instances have been recorded which offered the possibility of infection through recent handling of the article by others. Contacts with papers, pencils, etc., handled remotely by others have not been included.

Another point that stands forth is that our hands are dangerous to others only in proportion to the frequency with which we infect them with our mouth and nose. The present experience shows seven hand to nose contacts and but two direct hand to mouth contacts. The handkerchief thus looms up as a factor of importance. Through it we may infect our hands from our nose, which is dangerous to others, and also infect our nose with our hands which is dangerous to ourselves.

Several lessons of practical value suggest themselves from the above related experiences. They are:

I. That we should use handkerchiefs one side of which is conspicuously colored or marked so that we may always apply the hands to one side reserving the other side for the nose. This will protect our own nose from our hands and help to prevent the infection of our hands.

II. That we should abandon the universal practice of shaking hands, substituting some other less intimate method of salutation.

III. That we should encourage means which will lessen the opportunity for public restaurant employees to handle eating utensils.



Lots of people say the Journal improves month by month. Bring the Membership up to 5,000 and watch what happens.

INCOME AND INFANT MORTALITY

Miss Julia C. Lathrop,
Chief of Children's Bureau, Washington, D. C.

Read before Sociological Section, American Public Health Association at Chicago, Ill., December 9, 1918.

Miss Lathrop, who is a leader in the country-wide movement to save the babies, tells us in this article how an insufficient wage, a mother who is obliged to labor, and a community that is careless about its housing, constitute three very important factors to the infant mortality.

THIS paper attempts no more than to indicate from facts gathered in the United States the immediate practical bearing of the subject upon the great interest of this association. It refers chiefly to the material secured by the infant mortality inquiry of the Children's Bureau and I shall quote from the series of reports prepared by members of the Bureau staff, mentioning only a few outstanding coincidences between varying incomes and varying infant mortality rates as shown with marked uniformity in the studies.

Infant mortality is the first subject mentioned in the law creating the Children's Bureau which directs it to investigate and report upon all matters pertaining to the welfare of the children, and it was the first subject of field study undertaken when the Bureau went into operation in 1912. For the last six years, a series of studies of infant mortality has been carried on. To this writing, intensive field studies have been made, with a substantially identical schedule, in eight cities, ranging in population from about 50,000 to more than half a million inhabitants, and differing widely in characteristics. They include a "steel city," Johnstown, Pa.; two textile cities, Manchester, N. H., and New Bedford, Mass.; Brockton, Mass., a center for the manufacture of high-grade shoes; Saginaw, Mich., a manufacturing city with no one predominating industry; Waterbury, Conn., chiefly given over to the manufacture of brass; Akron, Ohio, a rubber manufacturing center, and Baltimore, Md., a large cosmopolitan city. In addition, rural studies of maternal and infant welfare have been made, with especial reference to showing the amount and quality of care obtainable for mothers and babies in the remoter and newer country areas.

None of the studies made by the Bureau attempt to approach infant mortality as a medical question; they merely set down the co-existence of certain conditions of life with varying infant mortality rates. They are concerned with the economic, social, civic, and family conditions surrounding young babies. So far as the Bureau was aware, the method employed was new. Instead of basing the inquiry on the children who died, the criterion was really the children born in a given calendar year. The surroundings of each child were traced through his first year of life, or such shorter period as he survived, by women agents of the Bureau who called upon each mother and obtained the information through direct personal interviews.

For obvious reasons, only the urban studies undertake to state income in terms of cash receipts, and it is with these studies we are now concerned.

Although in each city studied the

earnings of the mother and other income facts were secured, the earnings of the father were selected as the standard of income, not only because in most cases such earnings constitute the family income, but because of the conviction that the earnings of a man should be sufficient to support his wife and young children in safe comfort. Great pains were taken to make the income figures as accurate as possible. While it was plainly necessary to accept the mother's statement with reference to matters directly pertaining to the daily life of the baby, it was thought that she might not always know about her husband's earnings and that other sources of information might be more important. Hence, in one of the earliest studies a test was made of the accuracy of the mother's answers to the income questions by comparing them with facts about the father's earnings collected from as many sources as possible; payrolls were consulted and employers and the fathers themselves were interviewed. *A comparison of the results of this test with the mothers' answers was fully satisfying as to the substantial accuracy of their statements, and they have been accepted for all the studies made.

All of the studies included in this discussion were made before the United States entered the war; so the figures given cannot be taken to represent wages or prices as affected by war conditions. During the past year a study has been in progress in Gary, Indiana, a war industries town. The findings of this study have not yet been analyzed.

The infant mortality rates have been tabulated in each city in connection with the earnings of the fathers up to a maximum of $1,250. Beyond this sum it became difficult to secure the facts. Except in the largest city studied, moreover, the number of instances of higher income was so small that they could not be divided into groups representing enough cases upon which to base percentages. Data were secured about the fathers of 23,780 babies, including stillborn children. More than one-fourth (26.9 per cent) of these fathers earned less than $550 during the year following the baby's birth. Only one in eight (11.9 per cent) earned as much as $1,250.

City	Total Births	Father's Earnings			
		Under $550		$1250 and Over	
		Number	Per Cent of Total	Number	Per Cent of Total
All cities	23,780	6,404	26.9	2,839	11.9
Johnstown, Pa.	1,499	243	16.2	524	35.0*
Manchester, N. H.	1,643	499	30.4	105	6.4
Brockton, Mass.	1,247	156	12.5	137	11.0
Saginaw, Mich.	1,015	182	17.9	143	14.1
New Bedford, Mass.	2,662	1,004	37.7	173	6.5
Waterbury, Conn.	2,197	808	36.8	192	8.7
Akron, Ohio	2,322	374	16.1	307	13.2
Baltimore, Md.	11,195	3,138	28.0	1,258	11.2

*In the study of Johnstown many incomes were returned as "ample," and such incomes have been included in the $1,250 and over group in this table with a result that the proportion of such incomes is perhaps exaggerated.

In general the lowest income groups are the highest infant mortality groups in all of the cities studied.

INFANT MORTALITY RATES BY FATHER'S EARNINGS.

City	Deaths of Infants Under One Year of Age Per 1,000 Live Births, by Specified Annual Earnings of Father		
	All Earnings	$1250 and Over	Under $550
All cities	111.2	64.3	151.4
Johnstown	130.7	87.6	260.9
Manchester	165.0	58.3	204.2
Brockton	96.7	73.5	67.1*
Saginaw	84.6	22.2	142.0
New Bedford	130.3	59.9	168.7
Waterbury	122.7	68.4	151.1
Akron	85.7	40.0	117.5
Baltimore	103.5	64.7	138.0

*Contrary to the findings for other cities, the mortality rates for the earnings groups under $550 and $550 to $849 were considerably lower than for the group $650 to $849. Two explanations for this peculiar showing may be advanced: First, the groups are comparatively small, having but ten deaths in each class, and consequently they may have been considerably influenced by exceptionally favorable conditions in the year selected; second, the earnings as reported in the lowest earnings group do not always reflect the family's standard of living.

It is impossible to state a normal infant mortality rate. Perhaps the best statement, because the most stimulating to

continuous effort, is that of the authority who has said that if all children were well born and well cared for the infant mortality rate would be negligible. Emphasis upon being well born is justified by the fact that in the birth registration area of the United States more than 46 per cent of the infant deaths occur during the first month of life. Many of these children fail to survive because of conditions antedating birth.

It may well be noted here that while the figures of the Bureau's studies and of other investigations clearly indicate the coincidence of the mother's exhausting toil and poor living conditions with the inability of the child to survive the first month of life, there is included within this 46 per cent a field which calls for the concentrated effort and study of physicians, social students and biologists.

The contrast between the most favorable and the least favorable rates in the cities studied indicates the favoring result of income which permits proper housing, proper surroundings and care, and which connotes a fair degree of education.

Income is important for what it buys. Its adequacy may be tested, for example, by housing. A comparison of rent paid with infant mortality rates in Manchester, N. H., shows the general tendency of infant mortality rates to fall as housing conditions improve. According to the report of the Children's Bureau on infant mortality in that city, there were 175 homes of live-born babies where the rental paid was less than $7.50 per month and the infant mortality rate among babies in these homes was 211.4 or more than double the census figure for the registration area in 1915 of 100 per 1,000 living births. The largest number of babies, 703, was found in homes where the rent paid was from $7.50 up to $12.49. The rate for this group was 172.1. There were 300 babies in the next class, where the rentals were from $12.50 to $17.49, and the infant mortality rate among them was 156.7. Only 62 babies belonged to homes with a rental of $17.50 and over, and six deaths occurred among them. Here the rate was about 1 in 10 or the equivalent of the census figure for 1915. The parents of 186 babies owned their homes, and the infant death-rate was still lower, 86 per 1,000. The Johnstown Report says: "In homes of 496 live-born babies where bathtubs were found, the infant mortality rate was 72.6, while it was more than double, or 164.8 where there were no bathtubs. . . . In a city of Johnstown's housing standards, the tub is an index of a good home, a suitable house from a sanitary standpoint, a fairly comfortable income, and all the favorable conditions that go with such an income."

Income plays a chief part in determining the location of the home as well as the kind of home. The report for Waterbury, Conn., shows that the infant mortality rate for children born in houses located on the street was 120.6, while that for children born in houses placed on the rear of a lot or on an alley was 172.0.

Overcrowding is another housing condition that accompanies low income. The report on Manchester, N. H., says: "The infant mortality rate showed a steady increase according to the number of persons per room. It was 123.3, where the average was less than one; 177.8 where the average was one but under two; and 261.7 where the average was two but less than three." It is significant that in Brockton, where wages, taken by and large were better than in any other city studied, and where the infant mortality rate was markedly low, there is no acute housing problem. Yet in Brockton, as in the other cities, the infant mortality rate was highest in the most crowded homes.

In houses where there was less than one person to a room, infant deaths occurred at a rate of 86.5 per thousand births; where there was more than one person to a room, that rate rose to 110.2. Only 32 out of 1,210 Brockton babies were born into homes where there were more than two persons to a room. There is available much foreign material which confirms the impression conveyed by the Children's Bureau studies of the fundamental importance of decent sanitary housing.

A woman, who was the mother of six children and whose husband earned $2 a day, after reading certain of the Children's Bureau bulletins on the care of children wrote to the Bureau: "I like the Bulletins. Some of the things I knew before, some of them my neighbors have told me, but there are things you can't do when 8 people must live in two rooms."

Another test of the adequacy of income is the employment of the mother. The Johnstown report says: "It is impossible to judge from statistics alone whether or not the work done by an individual woman, either her own housework or work for money is so excessive as to affect her during pregnancy or while nursing to the extent of reacting on the health of the baby, but the fact is that the infant mortality rate is higher among the babies of wage-earning mothers than among the others, being 188, as compared with a rate of 117.6 among the babies of non-wage-earning mothers. Wage-earning mothers and low-wage fathers are in practically the same groups, and it is difficult to secure an exact measurement of the comparative weight of the two factors in the production of a high infant mortality rate." In Johnstown, no woman-employing industries were found, but many of the poorest foreign mothers kept lodgers and boarders, the percentage of mothers contributing to the family income varying from 47.6 per cent in the lowest wage group to 2.0 per cent in families where the father earned $1,200 or more. In the case of this type of working mothers, although there is severe toil, the baby profits because there is not the necessity for artificial feeding which exists when the mother is away from the child during working hours. In Manchester, N. H., where there is a great demand for women workers in the textile trades, 679 mothers of babies were employed during the year following their baby's birth, 353 in the home, 326 outside, and 885 were not employed. While the rate for the babies of mothers at home and with no employment save that of caring for their households was 122.0, that for mothers employed outside the home was 312.9.

That mothers apparently do not choose to go out to work leaving young babies at home is shown by the lessening proportion of mothers employed as the husband's wages increase. In Manchester, 65.7 per cent of the mothers whose husbands earned less than $550 were gainfully employed during the year following the baby's birth, while only 9.5 per cent of the mothers whose husbands earned more than $1,250 were so employed. When it is realized that the infant mortality rate greatly increases when the mothers go out leaving young babies at home and that the number of mothers so employed rapidly decreases as the father's wages increase, the connection between income and infant mortality becomes more impressive than if viewed from any other approach.

Poverty may be accompanied by ignorance. Although it is not possible to gauge the relative ignorance of the care of children according to income, it is clear that poverty takes away the defenses by which the effects of ignorance may be evaded. Sir Arthur Newsholme, Medical Officer of the English Local Government Board, offers a spirited defense of the

working-class mother in this connection. He says:

"Maternal ignorance is sometimes regarded as a chief factor in the causation of excessive child mortality. It is a comfortable doctrine for the well-to-do person to adopt; and it goes far to relieve his conscience in the contemplation of excessive suffering and mortality among the poor. . . . There is little reason to believe that the average ignorance in matters of health of the working-class mother is much greater than that of mothers in other classes of society. . . . But the ignorance of the working-class mother is dangerous, because it is associated with relative social helplessness. To remedy this, what is needed is that the environment of the infant of the poor should be levelled up toward that of the infant of the well-to-do, and that medical advice and nursing assistance should be made available for the poor as promptly as it is for persons of higher social status."

Among the essentials of a lowered infant mortality rate are:

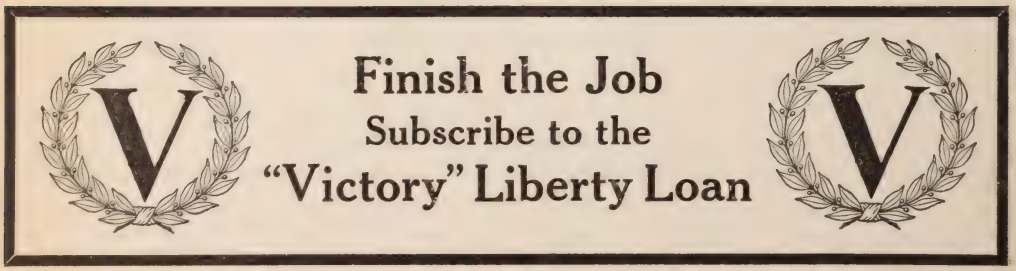
1. Medical and nursing care at the service of all mothers and infants in this country, a policy which has been discussed in the Fifth Annual Report of the Children's Bureau with reference to foreign experience and the setting forth of a plan for rural provision in the United States.

2. Adequate teaching in the normal hygiene of maternity and infancy made available for all girls and women.

3. Community responsibility for decent housing and sanitation.

But finally, and fundamentally, a general recognition throughout the country that a decent income, self-respectingly earned by the father is the beginning of wisdom, the only fair division of labor between the father and the mother of young children, and the strongest safeguard against a high infant mortality rate.

We still cling to the shaken but not shattered belief that this free country gives every man his chance and that an income sufficient to bring up a family decently is attainable by all honest people who are not hopelessly stupid, or incorrigibly lazy. The fathers of 88 per cent of the babies included in the Bureau's studies earned less than $1,250 a year; 27 per cent earned less than $550. As the income doubled the mortality rate was more than halved. Which is the more safe and sane conclusion! That 88 per cent of all these fathers were incorrigibly indolent or below normal mentally, or that sound public economy demands an irreducible minimum living standard to be sustained by a minimum wage and such other expedients as may be developed in a determined effort to give every child a fair chance?



A PLAN FOR A MORE EFFECTIVE FEDERAL AND STATE HEALTH ADMINISTRATION.*

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(*Concluded.*)

Read before General Sessions, American Public Health Association, at Chicago, Ill,, December 10, 1918.

The service, however, should be limited to serious cases, defined in the light of a rational understanding of public requirements, and no effort should be made to serve the large number of patients suffering from minor ailments, to the disadvantage of those in serious danger and most urgently in need of the proper medical or surgical skill, amplified, if required, by even prolonged nursing, attendance, medicines, appliances, etc. However difficult the solution of this question may be, it represents a decidedly preferable form of organization to the extremely costly, burdensome, and undemocratic method of compulsory health insurance typical of German autocracy and involving a disregard of the personal rights and liberties of a true democracy.

The foregoing three principles, (1) the physical and medical examination of at least children and young persons to their majority; (2) the accurate and complete registration of at least all serious illnesses considered as a community problem; and (3) the establishment of a limited state medical service; do not precede but merely logically follow or amplify the existing form of public health organization. There will never come a time when the police powers, as indicated at the outset, will not take precedence in dealing with communicable or quarantinable diseases, public sanitary necessities and public nuisances over any other matter not immediately concerning the health and welfare of the people. But there can be no permanent improvement in health administration until the foregoing three principles, however much modified in matters of detail, or enlarged in directions not indicated at the present time, are vigorously applied and made a condition precedent to whatever form of public health reorganization may be ultimately decided upon for the federal government as well as for the several states.

It would unduly enlarge this discussion if all the details† of such a required reor-

* The first part of Dr. Hoffman's paper appeared in the March issue of the JOURNAL.

† Among the more important contributions to the subject of health administration reorganization are the following: A Discussion on the Coördination of the Public Medical Services, by Dr. (now Sir) Arthur Newsholme, contributed to the Proceedings of the British Medical Association, 1907; The Economic Advisability of Inaugurating a National Organization of Health, by J. Pease Norton, read before the American Association for the Advancement of Science, 1906; Proposed Plan for an Institute of Public Health and Preventive Medicine, Confidential Publication, Columbia University, April 26, 1909; Argument for the Establishment of a National Department of Public Health, by U. S. Senator Robert L. Owen, U. S. Senate, March 24, 1910; Memorial in Behalf of the American Medical Association in Reference to Senate Bill 6049, Establishing a Department of Public Health and for Other Purposes, April 26, 1910; The Present Organization and Work for the Protection of Health in the United States, by Walter Wyman, M. D., Surgeon-General U. S. Public Health and Marine Hospital Service, read before the American Public Health Association, 1910; Letter from the Secretary of the Treasury, transmitting, in response to Senate Resolution of January 16, 1913, information relative to the expense for the year 1912 of the Public Health and Medical Service, February 12, 1913; Paper on the School for Health Officers of Harvard University and the Massachusetts Institute of Technology, by Milton J. Rosenau, Bulletin of Massachusetts State Board of Health, September, 1913; Address on the Training and Status of Public Health Officers in the United Kingdom, by George H. F. Nutall, M. D., Transactions Fifteenth International Congress of Hygiene and Demography, 1912; The Full-Time Health Officer; An Address by Louis I. Dublin, Ph. D., State Conference of Health Officers of Kentucky, 1913; Coöperative Public Health Administration, by Prof. Earl B. Phelps, U. S. Public Health Service, September 25, 1914; Coöperation and Coördination of Voluntary Public Health Organizations, by Frederick R. Green, M. D., American Public Health Association, 1914; Report on the Present Condition of Public Health Organizations in the United States, by Prof. S. M. Gunn, American Medical Association, 1915; A Survey of the Activities of Municipal Health Departments in the United States, by Frank Schneider, Russell Sage Foundation, 1916; Will the Private Practitioner Determine the Future of Public Health Work, Address by Haven Emerson, M. D., New York, 1916.

ganization of our public health services were presented on this occasion, even in the broadest outlines compatible with the vital importance of the subject. It has therefore seemed best to merely sketch the following plan of subdivisions of health functions as a tentative program suitable for discussion and rearrangement or amplification in matters of detail:

Proposed Plan of Federal Health Administration.

(Note—The term "U. S. Health Administration" seems in every way preferable to the term "U. S. Public Health Service" as at present in use. The functions already rendered, and to be rendered, are distinctly administrative, rather than in the nature of mere governmental services, possibly misconceived as a matter of useful convenience though of paramount necessity. The public has become familiar with the terms "Food Administrator," "Fuel Administrator," etc., and it would seem best, in any future health reorganization, to adopt such a term as is here suggested rather than to continue the obsolete and quite insufficiently descriptive one of "Surgeon General.")

The proposed health administration, therefore, would seem to group itself naturally and more or less in the order of their importance or logical interdependence into three main divisions, each of which should be in charge of an assistant Federal health administrator, as follows:

Division A—General Public Health and Quarantine.

Section

1 Health organization and administration.
2 Health laws and ordinances.
3 States Relations Service.
4 International and maritime quarantine.
5 Communicable and transmissible diseases.
6 Urban sanitation, town planning, and housing.
7 Rural sanitation.
8 Sanitary engineering and drainage.
9 Tropical medicine and sanitation.
10 Hygienic laboratory.
11 General scientific research.

Division B—Medical Practice and Physical Welfare.

Section

12 Medical practice, pharmacy, and dentistry.
13 Physical anthropology.
14 Child hygiene.
15 School hygiene.
16 Personal hygiene.
17 Industrial hygiene.
18 Mental hygiene.
19 Social hygiene.
20 Hospitals and institutions.
21 Race pathology.

Division C—Statistics and Information.

Section

22 Mortality statistics.
23 Morbidity statistics.
24 Health education, health propaganda, and publications.
25 Associated activities and health-promoting agencies.
26 Higher education in Public Health Administration.

In the foregoing outline no provision is made for special divisions or departments concerning diseases of exceptional importance, such, for illustration, as tuberculosis or malaria. Investigations or activities concerning these and other important diseases, such as pellagra, poliomyelitis, trachoma, etc., are now carried on by the public health service through the Department of Scientific Research. It may well be a question, however, whether these diseases should be made primarily a matter of research or of exclusive concern as to their more involved scientific aspects, or whether they should be conceived as administrative problems requiring action on the basis of a well considered Federal policy coördinated or correlated to state and local activities in the same direction. It would perhaps be better to make the functions of a research department more restricted and to broaden the field of administrative activity. In whatever direction such a broadening process might be deemed advisable, this would be readily feasible through the section Health Organization and Administration, or under one or more of the other subdivisions, such as urban sanitation, rural sanitation, etc.

The States Relations Service section rests upon the conception that the time is near when the Federal government should provide its share of funds in the furtherance of the working out of a rational public health policy for every section and subsection of the United States. The constitutional difficulties of such coördination seem to have been successfully overcome in the States Relations Service of the Department of Agriculture, and the expansion of the same principle in interstate highway construction, etc. It would seem entirely sound that the share of the nation in the general sanitary administration of the country should be one-third of the total cost, provided standardized requirements of service are demanded of the local authorities, upon whom would fall the burden of providing the other two-thirds of the cost, which again might be divided between the state (assuming one-third) and the county or municipality (assuming the other third). It is only upon some such principle as this that a perfect working plan of coöperation and coördination is ever likely to be developed. Unless the Federal government has a direct financial interest in local plans and purposes of sanitary administration there can never be a truly national health interest, sustained by a rational national policy of public welfare.

The section on communicable and transmissible diseases logically follows the section on international and maritime quarantine. Now that practically all the state quarantine stations have been transferred to the Federal government the effectiveness of Federal quarantine laws, rules and regulations have been very materially increased. Whether it would be wise to include in this section the medical inspection of immigrants is open to question; possibly a subsection might be created, to be known as "Immigration Service," for in many cases quarantine administration and immigration inspection are carried on by Federal officers within the same or adjoining premises, and possibly by the same medical officer. Since the primary purpose of all quarantine is to control the spread of communicable diseases, it would seem best that, in the logical order of arrangement, the latter should follow the former, even though much, if not most, of the work in connection therewith on the part of the Federal government would, unless present methods are materially changed, consist of epidemiological research and emergency work.

The work of the Hygienic Laboratory at the present time is subdivided into four divisions, respectively (a) pathology and bacteriology, (b) pharmacology, (c) zoölogy, and (d) chemistry. The question might be raised whether the laboratory should not concern itself more extensively with problems of medical entomology regardless of the fact that already much admirable work in this field is being done by the Bureau of Entomology of the Department of Agriculture. A certain amount of duplication of effort is absolutely unavoidable. To carry on malaria research, for illustration, without the closet possible coöperation of a well-organized department of medical entomology is practically impossible. As is generally understood, the main purposes of the Bureau of Entomology of the Department of Agriculture are economic, and such research work, for illustration, in connection with malaria and mosquitoes as has been carried on by the bureau has been primarily, if not exclusively, of an economic nature, emphasizing the relation of malaria frequency to variations in crop production, etc.

The question may also be raised as to whether the Hygienic Laboratory should not give more consideration to autopsy records, which, at the present time, if collected at all in local and state hospitals,

are generally deficient in matters of important details in that the objective findings are not clearly stated, or that the anatomical diagnosis is not concisely set forth in a manner suitable for future collective investigations. There is the utmost urgency for increasing the number of autopsies, especially in public institutions, and efforts in this direction, sustained by a Federal health administration, would prove unquestionably more successful than is the case at the present time.

The section on medical practice, pharmacy and dentistry will probably be the one to which most serious objections will be raised on practical grounds. The time is bound to come, however, when this problem will have to be met and when uniformity in medical practice and interstate rights and privileges will have to be granted to graduates of recognized institutions passing examinations in conformity to Federal requirements. How far this section would ultimately encroach upon collateral branches of medicine and surgery, such as osteopathy, chiropractique, etc., may well be left to the future. In any event, even if at the outset entirely without power to establish standard requirements of medical practice, such a section would serve the extremely useful purpose of collecting information and of assisting in the solution of interstate medical problems which are now a matter of serious concern in many sections of the country. Such a section would also be in an admirable position to best utilize the large amount of information collected by the Medical Section of the Council of National Defense and to keep such information down to date, for possible future military or other requirements. How far this section should include the nursing profession, both public and private, may for the time being, be left undecided.

The section on physical anthropology should be in charge of a thoroughly qualified expert, whose main function at the outset would be to collect in a systematic manner the vast amount of existing anthropometric material. Assistance should be rendered in the preparation of uniform or standard blanks, and the perfection of standard tables of physical proportions, all of which are at present more or less inadequate for practical purposes. There should be active coöperation, of course, on the one hand with the Children's Bureau, and on the other chiefly with educational authorities, Young Men's Christian Associations, etc.

The section on industrial hygiene, of the U. S. Public Health Service, has heretofore concerned itself chiefly with limited inquiries into highly specialized phases of the occupational disease problem in cooperation with the Bureau of Mines, the Bureau of Labor Statistics, etc. In view of the fact that the recently established section on Labor Conditions Service of the Department of Labor, contemplates a thoroughly well developed division of industrial hygiene, in charge of a former specialist of the U. S. Bureau of the Public Health Service, the future functions of a reorganized Federal health service in this field would probably be still more circumscribed. That, however, might be a material advantage in that the scientific research work to be undertaken or the cooperation required in highly specialized fields of inquiry, would be concentrated upon the more subtle and difficult problems rarely permitting of being adequately dealt with under a broader and more immediately practical division of work.

The suggested section on race pathology touches a field which has heretofore received decidedly inadequate consideration. Aside from the obvious necessity that more scientific attention should be given to the problem of negro mortal-

ity in the Southern states, affecting a population of more than ten millions, economically of the utmost importance to the southern agricultural and industrial interests, the more restricted fields of inquiry into the disease peculiarities of our native Indians, of the Orientals and Mexicans residing within our borders, of the numerous races, pure and mixed, in the Hawaiian Islands, and of the natives of Porto Rico, the Virgin Islands, etc., all suggest the necessity for a separate division of work, in charge of a thoroughly trained expert, whose work should be coördinated, as far as practicable, to the corresponding efforts of the Committee on Race in Relation to Disease of the National Research Council.

The statistics of hospitals and institutions are most urgently in need of being standardized. There is such a large variety of blanks and forms, and a most unfortunate blind conformity to antiquated methods no longer applicable to modern requirements, that drastic reforms are called for. Institutional morbidity statistics are of a high order of intrinsic value and practically useful in connection with a variety of medical, social and economic problems. The work of this section should be intelligently coördinated to the corresponding efforts of the College of Surgeons, the American Public Health Association, the American Hospital Association, etc.

The section on mortality statistics is not intended to include the work of the Division of Vital Statistics of the Census Office. It may safely be assumed as a foregone conclusion that the most serious objections would be raised against separating the Division of Vital Statistics from the Division of Population Statistics of the Census, both of which are closely interrelated in the primary object of disclosing the population and mortality tendencies of the nation, not only at different censal periods but during intercensal years as well. There are, however, other practical objections, among which perhaps the most important is the valid reason that the mortality data of the nation are, after all, the only true index of health progress in certain well defined directions, and that the control of the evidence relating to such progress should not be intradepartmental but extradepartmental, in so far as that can possibly be arranged for. No one has ever raised convincing objections against the office of the Registrar-General of England and Wales not being directly connected with the department of the Medical Officer of the Local Government Board, and while suggestions have been made for the transfer of this department to the proposed "Ministry of Health," the situation in England is, after all, essentially different from what it is in this country. The registration of diseases is quite another matter, since the morbidity is a much more correct current index of health and well-being than the mortality, even from strictly communicable or transmissible diseases. It may be said in this connection, however, that unless the existing methods of weekly abstracts of sanitary reports are materially perfected and improved in important details it would seem best to discontinue their publication entirely.

The question then arises as to how far such a plan as is here suggested, subject to change in matters of detail, would be applicable to state requirements. In view of the wide variations in state health purposes certain modifications no doubt would be necessary,—in some directions possibly an enlargement of the function suggested and in others a very material abridgment. In the main, however, the general plan and scope of the proposed organization should be found feasible of adoption by the several states and, of course, subject to further modifications,

by the larger municipalities. The status of any Federal health organization will probably always remain chiefly advisory and corrective. This conclusion, of course, does not apply to international and maritime quarantines, or to the hygienic laboratory, or to research work. The real health *administration*, in conformity to our constitutional limitations, must, after all, remain, and properly so, a state or local function. By way of illustration, a very brief reference may be made to the state organization of California. While apparently the budget is fairly liberal, it is entirely inadequate to the purpose, considering the vast area of the state and the wide variations in local conditions and special needs. In the Sacramento Valley, malaria is a problem of the first importance, in southern California it is the indigent tuberculous patient, in the Mother Lode region it is miners' hookworm disease and possibly miners' phthisis, while in the city of San Francisco it is, in a rather restricted sense, of course, the problem of Oriental mortality, tropical diseases, leprosy, etc. The state health organization rests upon a district system, which provides entirely inadequate financial resources, under a single health officer, for an area which may be larger than the combined territory of several New England states. Under the old conception of emergency service during epidemics, or sanitary after-care, the present method is probably as satisfactory as any. Under the proposed plan, however, the state would thoroughly reorganize itself and establish a health policy paramount to every financial, commercial or even sentimental consideration. The effective organization of all the health-promoting agencies in the state of California, in coördination to a well-equipped state health administration would prove productive of far-reaching results. Yet, regardless of vast expenditures for a multitude of purposes, the state has at present neither as effective a health organization as is required, nor is there a well defined movement in the direction of the required reforms.

The state of New Mexico may serve as another illustration. At the present time it may safely be asserted that the state is not only without a state health organization, but not one of the principal cities or larger communities has a thoroughly satisfactory local health board. The registration of deaths is not enforced. The people of the state of New Mexico are of right entitled to a progressive health policy. The health of this state is not merely a matter of local but of national concern as well, as best illustrated during the recent epidemic of influenza on the one hand, and the problem of the interstate migration of tuberculous invalids on the other. There are numerous special problems, such as the effect of altitude on health and its relation to the treatment of certain diseases, the proper and more effective use of medicinal springs, the morbidity and mortality of the Indian population, the special sanitary problems of the Mexican element, etc. None of these are receiving proper consideration at the present time. The state cannot possibly hope to attract new residents proportionately to the practically unlimited opportunities for further economic development unless evidence is forthcoming of a well considered state policy of a health administration more or less in conformity to the outline presented on the present occasion. The efforts which have been made by the New Mexico Public Health Association are deserving of the most liberal encouragement on the part of both the state authorities and the public at large.

This conclusion, however, does not apply with the same force to international morbidity statistics, where imperfections

are more excusable. To publish statistics for one week and not for another, and to leave gaps which frequently afterwards cannot be bridged, is to impair materially the true value of the returns under consideration so that if they cannot be improved they had better be done away with. Attention, however, may be directed on this occasion to the admirable plan worked out by the Division of Vital Statistics of the Census Office, under which weekly reports of deaths from all causes, and separately for ages under one, are transmitted by wire and made public in a consolidated form through the Associated Press within three days after having been assembled. The value of this method was particularly emphasized during the recent epidemic of influenza and pneumonia.

Finally, there remains a brief reference to the suggested section on health education and health propaganda and publications. The most serious objections lie against any form of ill-considered or superficial publicity, which while relatively rare is nevertheless sufficiently common to suggest an urgent word of caution. A single serious error or ill-considered statement of advice is likely to do more harm to a health organization, whether Federal, state or municipal, than all the good attained through a mass of irreproachable public utterances. The utmost caution is called for and only what is of real value should emanate from a Federal or a state health department, irrespective of the public clamor during a period of exceptional excitement, such as all are familiar with who passed through the epidemic of infantile paralysis, and the still more recent one of influenza. There is nothing more menacing to a public health service than a publicity department which considers it its duty to issue a continuous stream of bulletins, press notices, etc. It is absolutely unavoidable under such circumstances that, sooner or later, information or advice of a untrustworthy character is given publicity. The public has a right to be protected against the dissemination of ill-considered information or so-called "health news," which may be, and often is, seriously misleading or needlessly alarming. The field of health education has been enormously expanded during recent years, particularly through the coöperative efforts of health-promoting agencies such as the American Public Health Association, the National Tuberculosis Association, the American Society for the Control of Cancer, the National Safety Council, the Association for the Prevention of Infant Mortality,* etc. More active governmental participation in the work of these associations would materially aid in the highest attainable degree of success on the part of the Federal and state health administrations. In addition thereto, of course, the annual and special conferences of state and territorial health authorities, under the auspices of the Federal health service, fulfill a most important function. There can be no thoroughly effective coöperation between Federal and state health authorities unless the officials concerned know one another and know one another well.

No extended reference to the self-evident coöperation of the Federal health service with the sanitary and medical departments of the army and the navy, as well as with the health authorities of our non-contiguous or insular possessions, seems necessary. It is a foregone conclusion, of course, that such coöperation in the future would not only be most active, but follow much more carefully considered lines, based upon our war experience, than has heretofore been the case. Whether it would be necessary to make

* The title of this association has recently been changed to "American Child Hygiene Association."

special provision for such coöperation in a separate section is debatable. Any question arising could probably be taken care of by the section on health administration and organization, which, broadly speaking, should be made to serve all more or less general administrative and coöperative functions. Each and every section, it requires not to be emphasized, should be in charge of a specialist of national reputation. The scale of salaries and allowances should be liberal. If we are really in earnest in our claims that the health of the nation is a matter of paramount concern to all the people, we must be willing to pay the price. But in the long run a thoroughly well-paid and contented official staff will be the best possible investment as a guarantee against miscarriage of effort and failure to realize the best possible results.

Finally, the suggestion may be made that in the case of the Federal health administration as well as of the associations of the several states, provision requires to be made for an advisory council, rigorously limited to suitable expert ability. Such a council is urgently insisted upon in the proposed plan for a Ministry of Health for Great Britain. It has been recommended by the British Medical Association that such a council "should be appointed by the minister from nominations made by bodies recognized as having a special claim to representation. This claim should be based not on any supported vested interests, but on the ability of the bodies concerned to give expert advice on the subjects to be considered and to keep the minister in living touch with those bodies and classes of persons on whose coöperation the success of the new ministry would depend." Applied to the problem under discussion this would mean that the Federal health administrator, or the state health administrator, would attach to his office a body of experts recommended by associated activities such, for illustration, as the American Public Health Association, the American Red Cross, the National Tuberculosis Association, the National Safety Council, the National Committee on Malaria Eradication, the American Association for the Prevention of Infant Mortality, etc. Since the advisory services through the council would be individual rather than collective in the majority of cases in which such advice would be required, the membership of the council might be made relatively large. There should, of course, be representatives of the American Medical Association, the American College of Surgeons, the American Dental Association, the Mental Hygiene Association, the Social Hygiene Association, the Association of Pharmacists, etc., etc. There might even be representatives of related public activities, such, for illustration, as the American Statistical Association, the Association of Life Insurance Presidents, the U. S. Chamber of Commerce, the Association of Industrial Physicians, the National Industrial Conference Board, the National Association for School Hygiene, etc., etc. Assistance might also be drawn from the membership of the different sections of the American Association for the Advancement of Science, the American Anthropological Association, etc. The spirit of active coöperation and the willingness to render voluntary services are so thoroughly diffused throughout this country that it may safely be held that whatever voluntary assistance would be required by the Federal or state health administration in the directions indicated would be forthcoming without any difficulty whatever.

In the words of the late William Edward Hartpole Lecky:

"To raise the level of national health is one of the surest ways of raising the level of national happi-

ness, and in estimating the value of different pleasures, many of which, considered in themselves, might appear to rank low upon the scale, will rank high, if in addition to the immediate and transient enjoyment they procure, they contribute to form a strong and healthy body. No branch of legislation is more really valuable than that which is occupied with the health of the people, whether it takes the form of encouraging the means by which remedies may be discovered and diffused, or of extirpating by combined efforts particular diseases, or of securing that the mass of labor in the community should, as far as possible, be carried on under sound sanitary conditions."

The achievement of this ideal demands a decidedly more effective health administration, attainable only, however, upon new and broader conceptions, scientific as well as practical, than those which underlie the health organizations of today.



PROBLEMS OF CANNING.

Willard D. Bigelow,
Washington, D. C.

Read before Food and Drugs Section, American Public Health Association, at Chicago, December 12, 1918.

This is a short and direct story in a matter in which everyone is interested, canned goods. The author shows the need of standardization and says a few things about milk.

DURING the past year distinct progress has been made in the study of a number of problems relative to canned foods, although at this time the studies are in such a stage that only a report of progress can be made. Several of the studies have proceeded to such a point that it is believed that publication regarding them will be made during the coming year. It would not be appropriate, therefore, to make definite statements regarding the results of these studies.

Tin Plate Investigation.

The studies heretofore made have been planned with a view to increasing the knowledge of the corrosion of the tin and steel of the plate and also studying the possible influence of different kinds of plate on the discolorations occurring in the can. Some attention has also been given to the influence of the character of the plate on perforation of the can and hence on spoilage from that cause. At the present time the question of perforation is being intensively studied.

Discoloration in Canned Foods.

There are several types of discoloration that occur in canned foods owing to causes which are only partially understood and have no influence on the health of the consumer, but are objectionable because they detract from the appearance of the food. The discoloration which is met with most frequently is sulphid of iron due to the combination of hydrogen sulphid, traces of which are always liberated when any food is cooked, with the iron of the tin plate. This iron sulphid is in colloidal form and is often mixed with starch or other food material, so that it appears to be present in much larger amount than is actually the case. It is formed in patches on the inner surface of the can. The patches are located at the upper portion of the can which is not in contact with the food. Sometimes these black patches adhere

firmly to the can and are not removed when the contents of the can are emptied; sometimes they are of looser texture and become mixed with a portion of the contents when the latter is removed from the can. Because of the unattractive appearance of these patches it is desired to eliminate them if possible, and their nature and cause becomes one of the problems which should be solved. Some progress has been made on this subject, but much remains to be done.

Bacterial Flora in Canned Foods.

Work is progressing in several laboratories in the study of the types of bacteria to which spoilage of canned foods is usually due and the determination of the time and temperature of sterilization necessary with different foods to cause the destruction of those bacteria. It is hoped that some publication regarding this matter will be made during the coming winter.

Heat Penetration.

To make practical use of the study of bacteria referred to above, we must know the temperatures reached at the center of the can during processing and must know what time and temperature of sterilization are necessary to secure a certain temperature for a certain time at the center of the can. This question is greatly complicated by the wide diversity of the foods canned and also by the varying technological operations of the canning plants. The question is being attacked from different standpoints, however, both in laboratories and commercial canneries, and material progress has already been made.

Standards for Canned Foods.

The Committee on Definitions and Standards has given a relatively small amount of attention to canned foods. Definite standards have been adopted for canned peas which it is hoped will ultimately exert an influence on the wording of labels so that consumers can secure more definite information concerning the contents of the can by reading the label. The Committee has also adopted standards regarding evaporated and condensed milk which have been the subject of criticism from different standpoints and for different reasons.

Recently the Committee has considered the advisability of modifying the standards of evaporated and condensed milk and conducted public hearings with that in view a few days ago. It is the purpose of the Committee to require as high degree of concentr ıtion as is practicable for manufacturers to produce. In this connection several factors must be taken into consideration. The raw milk employed must have a lower degree of acidity than is necessary with market milk. After storage for a few weeks, particles of butter fat or of coagulated protein are likely to separate from the evaporated milk, causing an appearance which is not satisfactory to the American market.

Another question that is actively discussed with reference to evaporated and condensed milk is the propriety of standardization, that is, of modifying the composition of milk by removing a portion of the fat or by adding additional cream until a standard composition is obtained. This practice has become fairly general with market milk. The practice has both proponents and opponents and the same arguments for and against the practice which apply to market milk also apply to evaporated and condensed milk.

There is also the additional argument that milk with high fat content cannot be concentrated as much without subsequent separation as milk with low fat content. Standardization will, there-

fore, make it possible to produce evaporated and condensed milk of more uniform concentration as well as of more uniform composition. At the same time, the objections to standardization are obvious and have been stated frequently and the question cannot be decided without careful consideration.

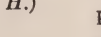
The Committee on Definitions and Standards is considering the propriety of adopting standards for the composition of tomato pulp and puree. These products are being placed on the market to an increased extent in packages which go directly to the consumer. The tomato pulp now on the market varies from unconcentrated strained tomatoes to the product obtained by concentrating strained tomatoes to one-third of their volume.

The general question of the possibility of the application of standards to canned foods is receiving attention. Among other questions being studied is the proper fill in various types of canned foods. This matter has received some attention from the industry and during the last season extensive experimental packs were prepared by the Bureau of Chemistry and are now being studied for the amount of each variety of canned food which the can should contain.

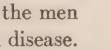


New Jersey State Health Department Establishes a Bureau of Venereal Disease Control.—The induction of several million men into military service showed that at least 10 per cent of the men are infected with an active form of venereal disease. It is believed that if laboratory tests were made on the secretions and blood of all the men, that the number of infected persons would reach 40 per cent. In order to combat this serious condition in the civil population the New Jersey State Health Department has established a bureau of venereal disease control, acting on the urgent request of the Federal government. It is planned to control the social diseases by enlisting the aid and coöperation of physicians, health officers, druggists, civic authorities and others interested in the campaign. Dispensaries will be established for examination and treatment of cases. The Department laboratories will be utilized to aid in detecting those who are diseased. Homes will be established for the detention of persons afflicted with venereal disease. A campaign of public education will also be inaugurated. Lastly, a general supervision of similar activities throughout the state is also planned.—*N. J. Public Health News*, Dec., 1918.

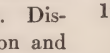
(*M. P. H.*)



Falconer's Arithrometer.—An instrument has been designed by Wilbraham Falconer, Superintendent of Mechanical Treatment in the Red Cross Clinic for the physical treatment of disabled officers, for the purpose of measuring angles of movements of joints. Its construction is simple; it is easily adjustable to a limb—allowing the measurement to be taken quickly. It can be used with all joints.—Allen and Hanbury (48 Wigmore Street, London, W. I.), *The Practitioner*, Dec., 1918, p. 352.



Trinitrotoluene in Rabbits.—Mary W. Brown, in the John McCormick Institute for Infectious Diseases, finds that rabbits are not poisoned by small doses of T. N. T. rubbed into the skin or by exposure to fumes of T. N. T. for a short length of time. There is great difference in individual susceptibility to doses taken by mouth. The blood shows minor appreciable changes while the same may be said of the spleen and marrow.—*Transactions of the Chicago Pathological Society*, Vol. X, No. 9, June, 1918.



Sensitization of Animals.—By injecting a rabbit with normal human serum (Wassermann negative) subcutaneously, first with a large dose (10–12 cc.), then twice with a reduced dose (5 cc.), then inoculating subcutaneously in the flank scrapings from a syphilitic mucous patch, containing numerous terponemata, the animal becomes emaciated, shows a slight local reaction and after four weeks a positive Wassermann reaction is obtained with the serum. This reaction is, of course, negative with the serum of the normal rabbit or the rabbit injected simply with human serum. Under the conditions indicated, the rabbit was caused to react with the formation of antibodies to the inoculation of a virus towards which it is ordinarily indifferent.—R. Dujarric de la Rivière, *Compt. Rend. Soc. de Biol.*, Paris, 81, 28 (1918).

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A FRANK TALK.

Although nearly fifty years old, the American Public Health Association has somewhat less than 2,500 members. The Association has not taken the place that it should really fill in the public health field. Owing to lack of funds and of personnel it has been obliged to neglect important opportunities and responsibilities in the promoting of public health. Half a dozen associations devoted to special phases of public health have outstripped the American Public Health Association.

The broad scope of the Association and the official and professional character of its membership make it the logical agency to assume leadership in public health thought and action. One essential requisite to this end, however, is a large, vigorous, energetic membership. A small organization is handicapped when it undertakes to do big things.

There are at least 20,000 persons in this great country whose professional interests make them eligible to membership in the American Public Health Association. Only one-eighth of these are now enrolled in its lists. Experience shows that personal contact is required to bring the Association to the attention of these un-enrolled men; letters alone cannot be depended upon. And here our members must help.

In asking your help, your Association appeals primarily to your loyalty and altruism. But do not forget that a larger membership implies that the Association can do more for you as well as for the cause. A large, well-supported organization can conduct propaganda for better legislation; it can more effectively present the necessity for adequate remuneration; it can better give its members the information needed in the daily work; and in a dozen other ways, can better support the great cause in which its name places it.

The future of the American Public Health Association lies in the hands of its members of today. Will you do your share in doubling our membership by bringing in *one* new member?

PUBLIC HEALTH EDUCATION.

It is worth while today to call to the attention of young men and women of this country that unexampled opportunities are afforded for training in public health work, opportunities that have had their origin in the value which war has placed on the health needs of the people, whether in camps or in cities.

There are a great many of the members of the Army Medical Corps who are now returning to civil life. A relatively large ratio of them have already received a partial training in sanitation and public health, and these persons, women as well as men, by a little further study, a short period of supplementary training in schools, will be equipped for active and practical public health work.

One of the great drawbacks heretofore has been the lack of trained men in public health work. The profession will therefore welcome a supply from this source and will offer the men every encouragement to complete their education at some one of the schools offering courses in public health studies.

There are a number of such schools that have presented their announcements in the advertising pages of the JOURNAL, while in its issue of last August the JOURNAL, in an article by Professor Howe, set forth a complete list of the schools then existing. The following schools of public health have come to our attention:

Albany Medical College and State Board of Health, Albany, N. Y.
Chicago Hospital College of Medicine, Chicago, Ill.
Detroit College of Medicine and Surgery, Detroit, Mich.
Harvard University and Massachusetts Institute of Technology, School of Public Health, Cambridge, Mass.
Harvard University Medical School, Department of Preventive Medicine, Boston, Mass.
Johns Hopkins University, School of Hygiene and Public Health, Baltimore, Md.
Massachusetts Institute of Technology, Department of Biology and Public Health
New York Academy of Medicine and New York Bureau of Municipal Research, New York City
New York University and Bellevue Hospital College, New York City
Ohio State University, Columbus, Ohio
Queens University, Kingston, Canada
Syracuse University, College of Medicine, Syracuse, N. Y.
Tulane University, New Orleans, La.
University of Colorado, Boulder, Col.
Union University, Albany Medical College, Albany, N. Y.
L'Universite Laval, Montreal, Canada
University of Michigan, Ann Arbor, Mich.
University of Pennsylvania, Philadelphia, Pa.
University of Toronto, Toronto, Canada
University of Wisconsin, Madison, Wis.
Western University, London, Canada
Yale University, New Haven, Conn.

PAPERS FOR THE NEW ORLEANS MEETING.

The program committees of the Association are now beginning to plan for the meetings to be held at New Orleans, October 6–9. The main topics of discussion will include: Southern problems such as malaria, hookworm, typhoid, the outhouse; influenza; coördination of national state and local health activities; practical helps to health officers.

The last named subject is expressly included as a result of a resolution passed at the Chicago meetings urging that in addition to the general scientific papers, advice be offered to the less experienced health officers upon such practical administrative problems as health appropriations, the attitude generally of appropriating bodies, the relationship between appropriations and the condition of public health, etc.

The Association will do everything in its power to make the annual meeting a means of giving the public health movement in the South the maximum impetus.

From the Chicago meetings, the most successful in our history, have come some excellent suggestions for further improving the quality of our programs. It has been suggested, for example, that those offering papers submit either manuscripts or short abstracts of about 200 words to the respective program chairmen. This expedient will be of especial service in cases where speakers are not well known to the program committees.

An effort will be made to have as many joint meetings among sections as possible, thereby saving the delegate the embarrassing necessity of often choosing between two or three section meetings, in all of which he is interested.

Although suggestions for the New Orleans programs are desired as early as possible in order that they may be considered by the full program committees, it has been suggested that program committees definitely accept no papers until well along in the summer. This will obviate the necessity of canceling papers in the event that readjustments of programs become necessary.

The various program committees will be glad to receive the suggestions of our membership concerning subjects and speakers. For this purpose a suggestion slip is printed at the end of this article. Following is a list of the section corresponding officers for the various program committees:

General Sessions: Mr. A. W. Hedrich, 169 Massachusetts Ave., Boston, Mass., secretary of program committee.
Sanitary Engineering: Mr. Paul Hansen, State Board of Health, Springfield, Ill., program chairman.
Food and Drugs: Prof. James O. Jordan, City Hall Annex, Boston, Mass., program chairman.
Vital Statistics: Mr. Richard C. Lappin, Bureau of the Census, Washington, D. C., program chairman.
Sociological: W. H. Brown, M. D., 280 Glenwood avenue, Bridgeport, Conn., program chairman.
Public Health Administration: William F. Cogswell, M.D., Helena, Mont., program chairman.
Laboratory: A. B. Wadsworth, M.D., 278 Yates street, Albany, N. Y., program chairman.
Industrial Hygiene: A. J. Lanza, M.D., U. S. Public Health Service, Pittsburgh, Pa., program chairman.

To the Program Committee of the .....

I suggest the following paper for your program at the New Orleans meeting of the Association, October 6–9, 1919:

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For speaker, I suggest: .....

.....

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Signed .....

Address .....

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M. DORSET, M. D., Washington, D. C.	JAMES ARMITAGE EMERY, M. D., Chevy Chase, Md. Chemist & Bacteriologist, U. S. Dept. of Agriculture
RICHARD C. LAPPIN, Washington, D. C.	JOHN O. SPAIN, Washington, D. C. Chief of Cause of Death Section, U. S. Census
W. A. SAWYER, M. D., Washington, D. C.	ROBERT V. HOFFMAN, A. B., M. D., Washington, D. C. U. S. Internal Dept. Social Hygiene Bd.
CHARLES L. WILLIAMS, M. D., Macon, Ga.	DANIEL W. GASKILL, A. B., Macon, Ga., Bacteriologist
CHESTER HARLAN CLARK, Major M. C., Rock Island Arsenal, Ill.	GEORGE G. PARLOW, Capt. M. C., Rock Island Arsenal, Ill. Bacteriologist
ARTHUR J. CRAMP, Chicago, Ill.	WILLIS STOSE HILPERT, Ph. D., Chicago, Ill. Chemist
H. B. HEMENWAY, M. D., Springfield, Ill.	ALFRED S. HARKNESS, Springfield, Ill. Public Health Illustrator
HUBERT P. MATTE, Springfield, Ill.	MARTIN WARREN COWLES, S. B., Springfield, Ill. Sanitary Engineer, State Dept. of Public Health
J. T. BIGGERSTAFF, Wabash, Ind.	JOHN D. WILSON, M. D., Laketon, Ind. Physician & Surgeon
PHILIP A. TETRAULT, Lafayette, Indiana	CHARLES B. KERN, M. D., A. B., M. S., Lafayette, Ind. Physician
JOHN H. HAMILTON, M. D., Iowa City, Ia.	HAROLD E. PEEBLES, B. S., M. S., Iowa City, Ia. Bacteriologist MISS ZELMA ZENTMIRE, B. S., M. S., Iowa City, Ia. Water Chemist, State Bd. Health Laboratory DANIEL CLARENCE STEELSMITH, M. D., C. P. H., Iowa City, Ia. Health Officer
DAVID E. ROUSE, M. D., Des Moines, Iowa	MABEL PEARL SPANSWICK, M. S., Des Moines Iowa. Bacteriologist
J. J. ENTZ, M. D., Hillsboro, Kansas	JOHANN C. ENTZ, Ph. G., M. D., Hope, Kansas. Physician

"A NEW MEMBER PER MEMBER BY MAY 1, 1919"

A.P.H.A.triots	—and—	The New Members Whom They Introduced
CAPT. WILLIAM LEVIN, Fort Riley, Kansas		OSCAR F. BROMAN, M. D., Greeley, Colo. Physician & Surgeon
		MISS BERTHA KAPLAN, B. S., Fort Riley, Kansas. Bacteriologist, U. S. Army Base Hosp. Laboratory
		FLORENCE M. LYTLE, Fort Riley, Kansas. Laboratory Technician, U. S. Army Base Hosp.
		IST LT. ROY WM. VAN DEVENTER, M. S., Fort Riley, Kansas. Physician
		MISS MARIE THOMPSON, Fort Riley, Kansas. Lab'y Technician, U. S. Army Base Hosp.
		MISS LUCILLE COLLINS, A. B., Fort Riley, Kansas. Lab'y Technician, U. S. Army Base Hosp.
		MISS MARGARET FIELDS, Fort Riley, Kansas. Laboratory Technician, U. S. Army Base Hosp.
MISS ANNETTA J. NICOLL, Topeka, Kansas		EDITH M. TWISS, B. A., M. S., Topeka, Kansas. Prof. Botany, Washburn College
A. T. McCORMACK, M. D., Bowling Green, Ky.		DR. W. W. RICHMOND, Clinton, Ky. State Bd. Health
		DR. GEO. T. FULLER, Mayfield, Ky. State Bd. Health
		DR. H. H. CARTER, Shelbyville, Ky. State Bd. Health
		DR. MILTON BOARD, Bowling Green, Ky. Dir. Bureau Tuberculosis, State Bd. Health
		DR. B. C. WILSON, Bowling Green, Ky. Dir. Bureau Tuberculosis, State Bd. Health
		DR. I. A. SHIRLEY, Winchester, Ky. State Bd. of Health
		DR. GEORGE S. COON, Louisville, Ky. State Bd. of Health
		DR. J. G. FURNISH, Covington, Ky. State Bd. of Health
		MRS. LAFON RIKER, Harrodsburg, Ky. Chief of Division of Nurses, State Bd. Health
		MR. E. B. WEITZEL, Bowling Green, Ky. Dir. Bureau of Hotels & Restaurants, State Bd. Health
		DR. LEON L. SOLOMON, Louisville, Ky. Dir. Bureau of Venereal Diseases, State Bd. Health
		DR. P. E. BLACKERBY, Bowling Green, Ky. Bureau of Vital Statistics, State Bd. of Health
		DR. LILLIAN H. SOUTH, Bowling Green, Ky. Dir. Bureau Bacteriology, State Bd. of Health
HENRY B. JACOBS, M. D., Baltimore, Md.		WILLIAM TRAVIS HOWARD, M. D., Baltimore, Md. Physician & Commissioner Health
C. BURRELL MARTIN, M. D., Baltimore, Md.		ERNEST H. RAHN, M. D., Baltimore, Md. Physician
ROSA E. PRIGOSEN, B. A., Baltimore, Md.		MARGARET LATHROP BRONSON, B. A., Baltimore, Md. Medical Student, Johns Hopkins Med. School
F. BORGES VIERA, Baltimore, Md.		GERALDO H. dePAULO SOUZA, M. D., Baltimore, Md. School of Hygiene, Baltimore, Md.
D. B. ARMSTRONG, M. D., Framingham, Mass.		P. CHALLIS BARTLETT, M. D., Newton Hlds., Mass. Physician
JOHN F. CROSTON, M. D., Haverhill, Mass.		ADELBERT M. HUBBELL, M. D., Haverhill, Mass. Physician
MURRAY P. HOROWITZ, Cambridge, Mass.		RAY POWERS, Orange, Mass. Asst. in Dehydration Invest., U. S. Bureau Chemistry
MILTON J. ROSENAU, M. D., Brookline, Mass.		J. PENTEADO BILL, M. D., Boston, Mass. Instructor Dept. Prev. Med. & Hygiene, Harvard Med. School
JOHN F. WINCHESTER, D. V. S., Lawrence, Mass.		DANIEL J. MURPHY, Lawrence, Mass. Supt. of Sanitation
J. BRONFENBRENNER, Ph. D., Boston, Mass.		ERNEST WALDRON CHEYNEY, B. S., M. D., Boston, Mass. Bacteriologist, Harvard Med. Sch.
MERRILL E. CHAMPION, M. D., Boston, Mass.		CECILIA A. LEMNER. Hingham Center, Mass. Nursing Asst., State Health Dept.
EDWARD O. OTIS, M. D., Boston, Mass.		TIMOTHY JOSEPH MURPHY, M. D., Boston, Mass. Physician
J. J. WEBER, Boston, Mass.		WILLIAM AUGUSTUS HINTON, B. S., M. D., Canton, Mass.
JOHN W. M. BUNKER, M. D., Detroit, Mich.		HENRY GURNEY DUNHAM, B. S., Detroit, Mich. Manufacturing Chemist
		MRS. MELISSA COBB WORTH, M. S., Detroit, Mich. Bacteriologist

"A New Member per Member by May 1, 1919"

A.P.H.A.triots	—and—	The New Members Whom They Introduced
WILLIAM De KLEINE, M. D., Flint, Mich.		WILLIAM DAVIS, D. D. S., Flint, Mich. Chief Dental Dept., Bd. Health
		LAFON JONES, M. D., Flint, Mich. Asst. Health Officer, Bd. Health
JOHN G. SAAM, M. D., Eveleth, Minn.		CATHERINE FINN, Eveleth, Minn. Visiting Nurse
W. S. LEATHERS, M. D., Jackson, Miss.		PAUL G. POPE, B. A., M. D., Columbia, Miss. Board of Health
HENRY BOSWELL, M. D., Sanatorium, Miss.		S. E. REES, Purvis, Miss. Health Officer
		P. R. BROWN, West Point, Miss. City and County Health Officer
		JOS. E. GREEN, Richton, Miss. County Health Officer
GEORGE A. BLAYLOCK, M. D., Perryville, Mo.		MAJOR F. M. VESSELLS, M. D., Perryville, Mo. Now Sanitary Inspect. Aviation Camps, France
J. K. GORE, Newark, N. J.		EDWARD GRAY, Newark, N. J. Vice Pres. Prudential Ins. Co.
F. W. GREEN, Little Falls, N. J.		BERNARD SIMPSON COHEN, S. B., Little Falls, N. J. Chemist, Montclair Water Co.
E. De M. LYON, M. D., Peekskill, N. Y.		PERLEY H. MASON, M. D., Peekskill, N. Y.
HELEN L. PALLISER, M. D., Poughkeepsie, N. Y.		EVANGELINE MOORE, A. B., Poughkeepsie, N. Y. City Bacteriologist
M. GORMAN PRINCE, Hobart, N. Y.		FRED T. FOARD, M. D., Portsmouth, Va. Physician, U. S. P. H. Service
F. L. RECTOR, Brooklyn, N. Y.		SIDNEY POPPLEWELL, B. S., C. E., New York City. Asst. Sanitarian, U. S. P. H. Service.
FENIMORE D. BEAGLE, Albany, N. Y.		FREDERICK S. HONSINGER, M. D., Syracuse, N. Y. Physician, State Health Dept.
MISS MARY B. KIRKBRIDE, Albany, N. Y.		MISS RUTH GILBERT, Albany, N. Y. Bacteriologist, N. Y. State Bd. Health
PROF. BURT R. RICKARDS, Albany, N. Y.		M. EDGAR ROSE, A. B., M. D., New York City. Supt. of Tuberculosis, N. Y. State
		FRANK WINFIELD LAIDLAW, M. D., Hurleyville, N. Y. Sanitary Supr., State of N. Y.
ALFRED T. WHITE, Brooklyn, N. Y.		MISS ELIZABETH STRINGER, Brooklyn, N. Y. Supt. of District Nurses
LEE K. FRANKEL, Ph. D., New York City		ELEANOR BRIDGELAND, R. N., New York City. Supervisor Nursing Service, Metropolitan Life Insurance Co.
GEO. W. FULLER, New York City		JAMES ROBINSON McCLINTOCK, B. S., New York City. Civil & Sanitary Engineer
SIMON ROBERT KLEIN, M. D., Ph. D., New York City		MRS. SOPHIE J. D. KLEIN, M. D., A. B., New York City. Public Health Laboratories
LT. H. W. LYALL, New York City		LT. LORIN W. SMITH, Jr., B. S., New York City. Sanitary Engineer, Bacteriologist, Debarkation Hosp. No. 5
PROF. JOHN C. TORREY, New York City		MORTON CHAS. KAHN, B. S., A. M., New York City. Instructor Hygiene, Cornell Medical College
S. W. WYNNE, M. D., New York City		FRANCIS JOSEPH MONAGHAN, M. D., New York City. Physician
GAIUS E. HARMON, M. D., Cleveland, Ohio		ENRIQUE EDUARDO ECKER, Ph. D., Cleveland, O. Diagnostician, Dept. of Health, Cleveland
E. J. SCHWARTZ, M. D., Columbus, Ohio		J. A. FRANK, M. D., Columbus, Ohio. Assistant Epidemiologist
WM. B. WHERRY, Cincinnati, Ohio		OSCAR BERGHAUSEN, M. D., Cincinnati, Ohio
		ALFRED FRIEDLANDER, M. D., Cincinnati, Ohio
		ALBERT H. FREIBERG, M. D., Cincinnati, Ohio
		WALTER LIST, M. D., Cincinnati, Ohio
		MISS BLANCHE PFEFFERKORN, R. N., Cincinnati, Ohio
		HOSPITAL SOCIAL SERVICE ASSOCIATION, Cincinnati, Ohio
		JAMES BAILEY ROGERS, M. D., Ph. C., Cincinnati, O. Bacteriologist, Branch Hosp.
A. C. SULY, Secy., Portland, Ore.		OREGON STATE BOARD OF HEALTH, Portland, Oregon
J. TREICHLER BUTZ, M. D., Allentown, Pa.		HARRY D. BAILEY, A. M., Allentown, Pa. Prof. Biology, Muhlenberg College
I. B. CRILLY, Altoona, Pa.		ARTHUR ST. C. BRUMBAUGH, A. M., M. D., Altoona, Pa. Physician
WM. ALEXANDER WOMER, M. D., New Castle, Pa.		CARLTON A. RUSSELL, New Castle, Pa. Chemist, New Castle Water Co.

"A New Member per Member by May 1, 1919"

A.P.H.A.triots	—and—	The New Members Whom They Introduced
MAURICE OSTHEIMER, M. D., Philadelphia, Pa.		HOWARD G. FRETZ, A. B., M. D., Philadelphia, Pa. Physician, Asst. Diagnostician, Health Bureau
OSKAR KLOTZ, M. D., Pittsburgh, Pa.		SAMUEL REESE HAYTHORN, M. D., Pittsburgh Pa. Asst. Prof. Pathology, Univ. Pittsburgh
		WILLIAM H. DAVIS, Pittsburgh, Pa. Dir. Dept. Public Health
WM. E. MOTT, Pittsburgh, Pa.		WM. LUDLOW HOLMAN, M. D., B. A., Pittsburgh, Pa. Prof. of Bacteriology
		HAROLD LOCKE LANG, S. B., Pittsburgh, Pa. Assoc. Prof. Biology & Public Health, Carnegie Inst. of Tech.
L. A. RISER, M. D., Columbia, S. C.		CLARENCE CHRISTIAN CRAFT, B. S., M. D., Bishopville, S. C. Director Rural Sanitation
MARK F. BOYD, M. D., Galveston, Texas		PLATT WALKER COVINGTON, Austin, Texas. Physician, State Board of Health
TEXAS STATE BD. OF HEALTH, Austin, Texas		OSCAR DAVIS, M. D., Austin, Texas. Asst. State Health Officer
CHAS. F. DALTON, M. D., Burlington, Vt.		WM. TAFT SLAYTON, M. D., Morrisville, Vt. Physician & Member State Bd. Health
E. C. LEVY, M. D., Richmond, Va.		P. M. CHICHESTER, M. D., Richmond, Va. Acting Health Officer
		SCHOOL OF SOCIAL WORK & PUBLIC HEALTH, Richmond, Va.
		DR. R. A. MARTIN, Richmond, Va.
MISS H. D. WHITEHEAD, Petersburg, Va.		JOSEPH DAVIS APPLEWHITE, M. D., Petersburg, Va. Asst. Surg. U. S. P. H. Service
C. P. MOAT, Burlington, Vt.		C. A. RAVEY, M. D., Burlington, Vt. Health Officer
S. L. JEPSON, A. M., Sc. D., M. D., Charleston, W. Va.		ELLIS SPENCER TISDALE, Charleston, W. Va. Asst. Engineer, State Health Dept.
M. B. WILLIAMS, M. D., Wheeling, W. Va.		CHARLES H. KEESOR, M. D. Wheeling, W. Va. Physician & Med. Inspect. Sch.
GEORGE CLINTON, M. D., Belleville, Ontario		BRENTON J. HAZLEWOOD, M. D., C. M., Bowmanville, Ont. Physician
JOHN W. S. McCULLOUGH, M. D., Toronto, Ontario		ROBERT E. WODEHOUSE, M. D., Fort William, Ont. District Officer of Health
ALBERT J. SLACK, London, Ontario		W. S. DOWNHAM, M. D., London, Ontario, Canada. Medical Health Officer
MALCOLM R. BOW, M. D., Regina, Saskatchewan		A. WILSON, M. D., Saskatoon, Saskatchewan
HARRY LYTLE, A. R., San. I., Saskatoon, Sask.		HENRY GEORGE BUCK, A. R., San. I., Saskatoon, Sask. Sanitary Inspector
THOMAS R. WILBER, Seattle, Wash.		W. M. VAN PATTEN, M. S., M. D., Seattle, Wash. Physician

Names of Proposed Members whose A.P.H.A.triots are not known

RAY F. GOUDEY, B. S., Berkeley, Calif. Sanitary Engineer

EDWARD M. HOLMES, M. D., Chicago, Ill. Physician

MASS. SOCIETY FOR SOCIAL HYGIENE, Boston, Mass. (L. V. Ingraham, M. D., Secy.)

RALPH PARKER, B. Sc., M. Sc., Ph. D., Bozeman, Mont. Medical Entomologist

THOMAS PARRAN, Jr., B. A., M. A., M. D., Washington, D. C. Asst. Surgeon, U. S. P. H. S.

LILLIAN G. PERRY, M. D., Cambridge, Mass. Physician

ISAAC B. SIMON, B. Sc., Roxbury, Mass. Student, Harvard & M. I. T. School of Public Health

HUGH DE VALIN, M. D., Seattle, Washington. Surgeon, U. S. P. H. S.

ELIZABETH PENFIELD VANPATTEN, Burlington, Vt. Public Health Nurse

DANIEL J. WILLIAMS, M. D., Gulfport, Miss. County Health Officer

P. B. WILLIAMSON, M. D., Poplarville, Miss. County Health Officer

GEORGE TEASDALE-BUCKELL, A. M., Houghton, Michigan. Bacteriologist, State Bd. of Health

EFFIE MAY FOLSOM, Chillicothe, Ohio

WILLARETTE C. SEARS, R. N., Great Barrington, Mass. Director Visiting Nurse Association

In some instances, applications have been received without the names of sponsors. As we desire to give credit to all A.P.H.A.triots, kindly insert your name upon applications sent out

Watch for the Memberometer!

It Tells the Story of the Campaign's Progress

Are YOU Helping the Association to Send the Mercury Higher?

"A NEW MEMBER PER MEMBER BY MAY 1, 1919"

LOCAL MEMBERSHIP DRIVES THROUGH COMMITTEES.

Inasmuch as competition always is an incentive in any undertaking, whether of business or of pleasure, the American Public Health Association has introduced such a feature in its "New Member per Member" campaign. Communities, irrespective of size, are invited to organize committees for local membership drives through personal solicitation. The general procedure should be to call a meeting of American Public Health Association members in the city or district involved, to have the latter suggest prospective members, to appoint sub-committees who will issue personal invitations to join, and to elect team captains, etc.

Any community may enter the contest, whether it has one member or several hundred.

The basis of comparison will be the ratio of increase over the pre-campaign membership, thus giving the small community an equal opportunity with the larger one.

News concerning the status of the teams will be carried in the Journal and in the News Letter both during the campaign and at its conclusion.

Several points are to be emphasized: first, that memberships already sent in by individuals will be credited to the community forwarding them; second, that in fairness to Southern and Western cities, the postal distances from Boston will be taken into account in figuring returns.

Final returns should be mailed from Boston by Thursday, April 30; other cities will receive an extra time allowance equal to the postal distance from Boston.

At the Chicago meetings in December a number of challenges were issued, and a lively and enjoyable rivalry between cities is to be expected.

Preliminary results of the contest will be announced in the News Letter appearing April 20 and the Journal appearing May 5. Final results will be published in the News Letter appearing May 20.

The first step is to call a meeting of A. P. H. A. members of your locality. Will you not telephone or write your local health commissioner or a director of the A. P. H. A. and offer him your co-operation?

ASSOCIATION ACTIVITIES.

It will be necessary merely to glance through the pages of the JOURNAL to realize that the Association is now entering into a number of activities, the realization of the wishes of the Executive Committee for some years past.

First and foremost you will be aware that the membership campaign is started. Evidence of this has come to you already in the personal letter of President Frankel, one of which with his autograph having gone to every member. What is asked is very simple: merely the coöperation of every member towards a bigger, better and busier Association, able through its increased income to enlarge the scope of its work.

Another feature of the year is the activity of the president in interesting different sections of the country in the work of the A. P. H. A. Already he has visited Cincinnati and Louisville; and by the time this JOURNAL is in the hands of its readers he will have visited Chattanooga, and will have formed his plans for a paper before the Medical Society of Ohio and a conference with the Indiana Health Officers' Association. At the same time the committee having in charge the Annual Meeting in New Orleans is steadily at work, getting together matters that will make that meeting "the best ever."

One of the very important matters broached at Chicago is the movement towards the conservation of energy through the coöperation of the many national health agencies of the country. This is in line with modern thought and has received serious consideration by the Executive Committee. It bids fair to unite the effort of great forces in the country in a way that has never hitherto been possible.

Still another matter of consequence undertaken by the Association is the work towards unification of effort in various of the states. This has already borne fruit in the movement towards the formation of a Kentucky state health association, and in Massachusetts, in steps towards a state-wide health association.

GRUNEWALD HOTEL WILL BE A. P. H. A. HEADQUARTERS IN NEW ORLEANS.

At a meeting of the Central Committee, New Orleans A. P. H. A. Meeting, which was held in New Orleans March 19, it was decided to select the Grunewald Hotel for Association headquarters during the meeting of October 6–9. The St. Charles Hotel will afford additional space for meetings and for accommodations.

A. P. H. A. NEWS LETTER.

The A. P. H. A. began on March 20th the publication of the News Letter. All members and subscribers have already seen it and it tells its own story. It will cover the lighter field in public health work as the JOURNAL is covering the scientific field.

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Do not fail to look over the Color Insert—back a page—and see how fast New Members are coming in.

OMISSIONS IN OUR MEMBERSHIP LIST

In the mimeographed state lists of members recently sent out in connection with the membership campaign, omissions will be found of the names of some of our most valued members. Such omissions are usually caused by one of the following reasons:

Delayed notice of changed address;

Listing memberships under the name of a department instead of the individual;

Delayed payment of dues;

In addition, Subscribers to the Journal, not being members, were not in the lists.

A few instances of accidental omission will be found. This follows from the necessarily rapid preparation of lists outside of our office, under conditions that did not permit careful checking. As such errors are pointed out to us, we shall be glad to publish corrections.

ASSOCIATION NEWS

HELP WANTED.

In order to help relieve the shortage of sanitarians due to the war, free help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Bacteriologist in a Massachusetts municipal health department laboratory, with at least one year's experience in public health laboratory work. Male physician preferred. Salary $1,500. Address D. H. B. No. 190, care of this JOURNAL.

Public health nurses or trained social workers for county health work. Salary, $1,200. Also woman with experience in making hookworm examinations in laboratory, with salary $900. Address L. A. R. No. 202, care of this JOURNAL.

City Physician for health department in Michigan. Salary $2,400. Address H. N. No. 211, care of this JOURNAL.

School Physician for health department in Michigan. Salary $2,400. Address H. N. No. 212, care of this JOURNAL.

Director of laboratory, department of health officer, Port of New York. Salary, $3,500. Requirements: Broad knowledge, both theoretical and practical, of bacteriology, and knowledge of general pathology. Executive ability. Candidates rated on education, experience, and personal qualifications. Apply for form before April 14 to State Civil Service Commission, Albany, N. Y.

Laboratory apprentice, New York State Department of Health. Salary, $720. Man or woman, age 18 to 30 years. Requirements: College education or its equivalent. Knowledge of bacteriology and practical laboratory experience desirable. Written examinations in elementary physics and chemistry with consideration given for education and experience. Open to non-residents. Apply for form before April 14 to State Civil Service Commission, Albany, N. Y.

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Army Photographs Wanted.—In connection with this campaign for the employment of the returning war sanitarians, the Association is in need of good photographs illustrating the various phases of army health work. If you have any such photographs send them to the Association at 169 Massachusetts Avenue, Boston, Massachusetts. Due credit will be given upon publication.

Incidentally the editor of the JOURNAL is always glad to receive good photographs illustrative of health work together with a short descriptive story.



Do all the members of your Board of Health belong to the A. P. H. A.? If not, invite them in. We can help them discharge their duties more efficiently and your Department would be abundantly justified in paying their membership fees.

NEW MEMBERS.

Elected to membership in the American Public Health Association during March:

Henry C. Allen, Camp Gorden, Ga.

C. C. Applewhite, A. B., M. D., Atlanta, Ga., Ass't Epidemiologist, U. S. Public Health Service.

Thomas H. Argue, M. D., Saskatchewan, Can., Health Officer.

Lloyd T. Binford, Atlanta, Ga.

Marguerite Bond, B. S., Adams, Mass., Acting Bacteriologist, Bd. of Health Lab., Brockton, Mass.

S. Borton, D. O., Golden, Ill.

Clarence J. Broeman, M. D., Cincinnati, Ohio, Acting Ass't Surg., U. S. Public Health Service.

Raymond V. Brokaw, M. D., Orange, Texas, Field Director, State Bd. Health.

A. H. Burnett, Cincinnati, Ohio.

Edw. A. Cahill, V. M. D., Zionsville, Ind., Director, Pitman Moore Biological Labs.

George H. J. Chapman, Toronto, Ont., Laboratory Technician.

L. E. Close, Massena, N. Y., Bacteriologist.

David J. Davis, M. D., Ph. D., Wilmette, Ill., Prof. of Bacteriology, Univ. of Ill.
R. D. Dedwylder, M. D., Indiana, Miss.
H. A. Dittmer, M. D., Manchester, Iowa.
Charles P. Fox, M. Sc., Dayton, Ohio, Chemist.
S. Watson Fox, M. D., Philadelphia, Pa.
Sol H. Freiberg, Cincinnati, Ohio, Treas. Anti-Tuberculosis League of Cincinnati.
C. W. Fry, M. D., Huntington, Ind., County Health Commissioner.
Arthur E. Gorman, B. S., Columbus, Ga.
J. Victor Greenebaum, A. B., M. D., Cincinnati, Ohio.
Reba C. Haner, Sun Prairie, Wis., Laboratory Technician.
Maurice Hexter, Cincinnati, Ohio, Director, United Jewish Charities.
J. Hogan, M. D., Chicago, Ill.
E. Murphey Howard, M. D., Harlan, Ky.
Earle H. Ingram, M. D., Philadelphia, Pa., Plant Physician, Wm. Cramp & Sons Ship Bldg. Co.
Thomas W. Jackson, M. D., Harrisburg, Pa., Ass't to Comm. of Health, Phila., Pa.
John Shillito Co., Cincinnati, Ohio, Department Store. (Corporate.)
Wm. Sebald Keller, M. D., Cincinnati, Ohio.
Philip G. Kitchen, M. D., Upper Darby, Pa.
E. Klaveness, M. D., Minneapolis, Minn., President and Med. Director, Surety Fund Life Co.
H. Logan, M. D., Niagara Falls, Ontario.
Lois V. Lyon, University, N. D.
Donald Mackie, Edmonton, Alberta, Registrar of Vital Statistics, Prov. of Alberta.
Amy G. Maher, Toledo, Ohio.
John F. Mahoney, Ft. Worth, Texas, Assistant Surgeon, U. S. Public Health Service.
Bleecker Marquette, M. D., A. B., Cincinnati, Ohio, Exec. Sec., Better Housing League.
A. A. Mees, Cincinnati, Ohio, Act. Supt., Anti-Tuberculosis League.
W. R. Morrison, M. D., Cincinnati, Ohio, Teacher, Hygiene and Physical Education, Cinn. Univ.
H. S. Mustard, Phila., Pa., U. S. Public Health Service.
National Housing Ass'n, New York City.
Ralph W. Nauss, B. Sc., M. D., Dr. P. H. Fresno, Cal., State District Health Officer.
Harold Nightingale, S. B., Dallas, Texas.
O. J. Nothenberg, M. D., Chicago, Ill., Health Officer.
Gilman W. Petit, M. D., Chicago, Ill., Open Air School Physician.
Pollack Steel Co., Cincinnati, Ohio, Manufacturers Steel Forgings. (Corporate.)
Rosa E. Prigosen, B. A., Baltimore, Md., Student, Johns Hopkins Medical School.
Proctor and Gamble Company, Cincinnati, Ohio. (Corporate.)
Provincial Treasury Dept., Victoria, B. C.
Richard O. Richards, Huron, S. Dakota, Science in Government.
Hiram H. Roehm, B. S. A., M. S., Syracuse, N. Y., Bacteriologist.
Edward J. Scannell, Trinidad, Colo.
James R. Scott, M. D., Ph. D., Los Angeles, Cal., Pathologist, Los Angeles County Hospital.
Max Senior, New York City, Ex. Com., National Conference Jewish Charities.
South Carolina Anti-Tuberculosis Ass'n, Columbia, S. C.
Harriet Staples, R. N., Mendham, N. J.
Frederick O. Tonney, Chicago, Ill., Director of Labs., Chicago Dept. of Health.
John C. Torrey, A. B., Ph. D., New York City, Prof. of Hygiene, Cornell Medical College.
Francisco Borges Viera, M. D., Baltimore, Md., Student in Public Health.
Alden H. Waitt, Medford, Mass.
Western & Southern Life Ins. Co., Cincinnati, Ohio, Life Ins. (Corporate.)
Women's Municipal League of Boston, Boston, Mass.
Ruth I. Workum, Cincinnati, Ohio, Exec. Sec., Ohio Humane Society.

CAMPAIGN NEWS NOTES.

Here are some of the first responses to President Frankel's call:

William De Kleine, Health Officer, Flint, Mich.: "I am enclosing two memberships for the A. P. H. A."

William Levin, Captain S. C., U. S. A.: "Enclosed please find checks for $20 covering dues for four proposed members of the Association."

A. T. McCormack, Sec. Kentucky State Board: "This Board at its last session decided that each of its members and the heads of departments should become members of the A. P. H. A., so as to receive the benefits of the Journal and its other work. Send me membership bills for any who have not already paid."

C. M. Goddard, State Health Officer,

Austin, Tex.: "Assuring you that I shall appreciate the honor of having my name enrolled as a member of the A. P. H. A."

Henry Boswell, M. D., Miss. State Sanatorium: "Enclosed please find checks for $15. Please enter these and I hope to be able to send others in the near future."

Note.—Dr. Boswell had a special form multigraphed for sending in applications.

Dr. W. T. Sedgwick, Mass. Institute of Technology: "You are certainly making things hum and I congratulate you. I shall do my best to get some new members for you."

W. S. Rankin, M. D., Secretary, State Health Department, North Carolina: "I am heartily in accord with your earnest efforts to increase the membership of the association. I hope to secure for you two members if not four."

Wisconsin Anti-Tuberculosis Association: "Will you kindly send us 86 membership cards?"

Henry F. Vaughan, D. P. H., Detroit, Mich.: "I wish to congratulate you on the splendid advance which the Association has made in the field of public health during the past year and a half."

S. L. Jenson, M. D., Charleston, W. Va.: "Here is your member. Enclosed is the application of one of our assistant engineers, the last of our office force to join the Association."

William Duffield, M. D., Los Angeles: "I enjoy the Journal and as long as I practice medicine I will not be without it if it maintains its present standard."

John Hamilton, M. D., Iowa City, Iowa: "Since you were so good as to stir me out of my lethargy I am anxious to secure new members for the Association. . . . Kindly send me more blanks. I intend to extend invitations to a number of influential people in this community."

Merrill E. Champion, Mass. State Health Department, Boston: "I have turned in one new member and hope to be able to turn in others."

W. S. Leathers, M. D., Jackson, Miss.: "I have received the ten cards and have sent them out to ten members of our staff with typewritten letters."

THE "MEMBER PER MEMBER" CAMPAIGN

Is now really underway.
Our Colored Insert will tell you the late news.
Everybody is going to help.
You are going to help, and get *one* new member.
In case you have mislaid your blank application, *Don't be* discouraged—*Here* is another.

Tear off, fill out, and send this slip to:

SECRETARY, AMERICAN PUBLIC HEALTH ASSOCIATION,
169 Massachusetts Ave., Boston, Mass.

I nominate for membership

Name.....

Address.....

....
(Date) (Signed)

.....
(Please write your address)

BOOKS AND REPORTS REVIEWED

Children Well and Happy. *May Bliss Dickinson, R. N. Boston: Le Roy Phillips.*

In this little volume, very attractively printed, Miss Dickinson has embodied her ideas as to what should be taught our school girls concerning motherhood and the care of children. The objects of this book, and of the Girls' Health League of which it is the text book, are to present in clear, concise, practical and yet attractive form, that which young girls cannot know too intimately, namely, the care of themselves and of others, particularly babies, and the ordinary rules of health and hygiene.

Numberless text books have been written on this subject before. The reviewer knows of none, however, where the subject is so plainly and attractively handled and where, in addition, it is backed up by a definite scheme, for its presentation in public schools.

This little book is an eloquent reminder that one of the great fundamental aims of our modern educational scheme is to teach children the essentials of health and resulting happiness.

John B. Hawes, 2nd, M. D.

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The Chemistry of Food and Nutrition. *Henry C. Sherman, Ph. D., Professor in Columbia University. The Macmillan Company, New York, 1918. Pp. 454. Price, $2.*

The second edition of this book, which has been rewritten and enlarged, continues to serve its main purpose, namely, to act as a text-book for students of the subject. There are three entirely new chapters. One deals with fats and lipoids, another with anti-scorbutic and anti-neurotic properties of food, and the third, with food in relation to growth and development. The chapters on inorganic foodstuffs and mineral metabolism, and dietary standards and the economic use of foods, have been considerably enlarged. The other chapters deal with carbohydrates, proteins, enzymes and digestion, the fate of foodstuffs in metabolism, the fuel value of food and the energy requirement of the body, and the conditions governing them.

In the light of recent investigations, our ideas of an adequate diet have changed materially. It is necessary not only to have a proper amount of protein, carbohydrate, fats, and mineral salts in the diet, but there must also be other substances, still unknown in chemical composition, which are essential to good health, mature development, and the normal functioning of the organism. These unknowns are essentially four in number, namely, the anti-scorbutic ingredient in foods, the anti-neurotic ingredient, fat soluble A, and water soluble B. An adequate diet must now have the following five essentials: (1) An adequate energy value; (2) proteins sufficient in quantity and suitable in their amino acid make-up; (3) ash constituents each in sufficient quantity and all in well-balanced proportions; (4) fat soluble A; (5) water soluble B. The author also emphasizes the fact that climate, season, housing and clothing, all affect the energy requirements of the body.

The book is well written, and covers the subject thoroughly for those who desire some knowledge about the elements of the chemistry of foods and nutrition. Numerous original sources have been drawn on for information, and the book contains many tables which summarize the results of previous investigations. The book is recommended to dietitians, social workers, health officers and all others interested in the subject of nutrition.

Murray P. Horowitz.

✻

Information for the Tuberculous. *F. W. Wittich, A. M., M. D., Physician in Charge of Tuberculosis Dispensary in the University of Minnesota Medical School; Visiting Physician to University Hospital, Minneapolis. St. Louis: C. V. Mosby Company. Pp. 150. Price, $1.*

This book is the result of many requests from those who exhibited great interest in weekly talks given by the author while he was doing sanatorium work. It answers the questions which frequently arise and which are constantly asked by hundreds of patients when first learning that they are tuberculous.

To conquer tuberculosis in the shortest possible time, the patient must eat well in order to nourish his body; he must be a real optimist to keep his mind pleasantly occupied; he must own a great fund of common sense so as to go on steadily toward recovery without being led astray by quack medicines and poor advice; he must possess patience in unlimited abundance to prevent his growing weary of the long, long siege; he must enjoy being courageous so as to work bravely on in the right way even though his progress may seem but slow; he must have superlative will-power which compels him to fight every day—for he must fight if he will win.

Doctor Wittich's book is written in a thorough and simple manner and should prove a wonderful help to those tuberculous patients who would fight to win.

Clarence D. Hart.

THE COLLECTED WORKS OF JOSEPH LISTER*

Published by Henry Frowde & Hodder & Stoughton, London, 2 Vols.

Lancet, 1867

"The frequency of disastrous consequences in compound fracture, contrasted with the complete immunity from danger to life or limb in simple fracture, is one of the most striking as well as melancholy facts in surgical practice.

"If we inquire how it is that an external wound communicating with the seat of fracture leads to such grave results, we cannot but conclude that it is by inducing, through access of the atmosphere, decomposition of the blood which is effused in greater or less amount around the fragments and among the interstices of the tissues, and, losing by putrefaction its natural bland character, and assuming the properties of an acrid irritant, occasions both local and general disturbance. . . .

"Turning now to the question how the atmosphere produces decomposition of organic substances, we find a flood of light has been thrown upon this most important subject by the philosophic researches of M. Pasteur, who has demonstrated by thoroughly convincing evidence that it is not to its oxygen or any of its gaseous constituents that the air owes this property, but to minute particles suspended in it, which are the germs of various low forms of life . . . resolving the complex organic compounds into substances of simpler chemical constitution. . . . "

Lancet, 1870

"But, to the great disappointment of all concerned, this noble structure proved extremely unhealthy. Pyæmia, erysipelas, and hospital gangrene soon showed themselves, affecting, on the average, most severely those parts of the building nearest the ground. . . . For several years I had the opportunity of making an observation of considerable though melancholy interest, namely, that in my accident ward, when all or nearly all the beds contained patients with open sores, the diseases which result from hospital atmosphere were sure to be present in an aggravated form; whereas when a large proportion of the cases had no external wound, the evils in question were greatly mitigated or entirely absent. . . . The wonder now was not that these wards upon the ground-floor had been unhealthy, but that they had not been absolutely pestilential. Yet at the very time when this shocking disclosure was made, I was able to state, in an address which I delivered to the meeting of the British Medical Association in Dublin, that during the previous nine months, in which the antiseptic system had been fairly in operation in my wards, not a single case of pyæmia, erysipelas, or hospital gangrene had occurred in them.

"I almost forgot the kind of considerations which used to determine me to amputate under the old treatment; though I know that experience taught us that it was only in comparatively mild cases that it was justifiable to attempt to save the limb. Now, however, there is scarcely any amount or kind of injury of bones, joints, or soft parts which I regard as inconsistent with conservative treatment, except such destruction of tissue as makes gangrene of the limb inevitable as an immediate consequence.

"The emanations from sores are poured directly into the confined atmosphere in which the patients are; and any one familiar with the faint sickly smell commonly perceptible in surgical wards under ordinary treatment, and still more with the stench which prevails at the time of the daily dressing, will readily understand that putrid exhalations from the patients may be a source of mischief, compared with which the other circumstances alluded to may be of comparatively trifling consequence."

British Medical Journal, 1890

"Now that we are all agreed that microbes are the evil with which we have to contend, it is surely wiser to insure by germicidal means their entire absence from our hands and instruments rather than trust to the most perfect cleanliness in the ordinary sense of the term. . . .

"Since we abandoned the spray, three years ago, we have been careful to compensate for its absence, not only by antiseptic washing and irrigation, but by surrounding the seat of operation with widespread towels wrung out of an antiseptic solution. For the spray, though useless for the object for which it was originally designed, had its value as a diffuse and perpetual irrigator, maintaining purity of the surgeon's hands and their vicinity as an unconscious caretaker. But if besides the spray we give up all washing and irrigation of the wound, our vigilance must be redoubled. Yet I believe that, with assistants duly impressed with the importance of their duties, the task would prove by no means difficult. . . .

"In this referring to my own work, I do so, believe me, in no boastful spirit; but in the hope of stimulating some of those whom I address on this memorable occasion to more thorough earnestness in pursuit of the great objects of antiseptic surgery."

(*C. M. H.*)

*This is another of the series of extracts from classic public health literature selected by Prof. C. M. Hilliard, Associate Professor of Biology and Public Health, Simmons College, Boston.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horowitz and Mayo Tolman.

Misuse of the Word "Drugs."—With loose terminology that so speedily finds favor among the Americans which newspapers follow, there is today a continual misuse of the word "drugs," that could hardly be more universal were it the result of direct effort. Inasmuch as the degrading of the word in its application to "dope" tends to weaken confidence in essential drugs, pharmacists and druggists together with physicians are making an effort in various parts of the country to set the public right. This movement is quite strong on the West Coast and is worth while. There is an old saying about, "Give a dog a bad name," which is founded on the wisdom of ages. There are a number of popular appellations that presently become weapons against worthy causes or matters. The confusion of the legitimate and beneficial drug with the unlawful narcotic is working injury in most important business matters.

*

The Conference of the Massachusetts Girls' Health League in Boston was significant of the great progress of this important new health educational work for school girls. This conference was arranged by the Girls' Health League Committee of the Massachusetts State Federation of Women's Clubs, under the direction of Mrs. Herbert J. Gurney, president of the Federation.

Governor Coolidge expressed the commendation of the Commonwealth for the splendid work the women of Massachusetts accomplished during the war, and pointed out the great task before them in educating girls as the future mothers of the race.

Dr. Payson Smith, commissioner of education of Massachusetts, urged physical education in the public schools and strongly sanctioned the work of the Girls' Health League. He emphasized that the school is not the place for the teaching of sex hygiene; that this should be left with parents.

Dr. D. A. Sargent, physical director of Harvard, spoke on the importance of physical training as a preparation for motherhood, and urged that the Girls' Health League be considered an important agency to this end.

Mr. Bernard J. Rothwell, chairman of the Massachusetts Immigration Bureau, laid stress upon the need of teaching English to immigrants and spoke of the value of the education of immigrant girls in the care of babies.

The demonstration class of twelve girls was led by Miss May Bliss Dickinson, R. N., founder of the league movement. This demonstration proved of great value in showing how the classes are conducted in many of the cities and towns of Massachusetts.

A question box was conducted by Mrs. Irving O. Palmer.

*

Industrial Medical Service.—The Medical Department of the Endicott Johnson Company at Endicott, N. Y., has treated an average of 900 patients per week since the department was started in May, 1917. The department gives medical and surgical advice and treatment to all employees of the company and their families. No charge is made for the services of the physicians or nurses or for medicines. Optical and obstetrical work are included. All the physicians employed are general practitioners.

*

Anti-Venereal News.—The U. S. Public Health Station Division of Venereal Disease is conducting approximately 175 clinics. During the month ending December 15, 1918, there was a total of 19,456 visits to 29 clinics or an average daily attendance of 38 per clinic.

There were 2,489 new cases, an increase of 188 over the previous months. More than 25,500 treatments were administered.

Twenty thousand druggists have pledged themselves not to sell nostrums for treatment of venereal disease and five thousand newspapers have agreed not to publish the advertisements of "clapp" doctors. —*U. S. P. H. S., P. H. Reports*, IV–5. (*M. T.*)



You will find plenty of people in your community ready to be taken into the A. P. H. A. They need us. Review your acquaintances among the following: Members of boards of health, health officers, laboratory men, school medical inspectors, insurance medical directors, your library, welfare associations, teachers, sanitary engineers.

Relation of Meteorological Conditions to the Prevalence of Pneumonia.—As a result of an extensive statistical study of the prevalence of lobar pneumonia in relation to meteorological conditions, Dr. David Greenberg, of the Yale Medical School, concludes that the most important factor controlling pneumonia is temperature. When the variations in temperature are great there are correspondingly large increases in the death-rate. Small variations in temperature apparently react favorably on the organism. It was also found that a low relative humidity is conducive to high death-rates and a high relative humidity to low death-rates from lobar pneumonia. The effect of wind is considered of small importance. Lobar pneumonia is most prevalent during the first three months of the year and is least prevalent during the months of July, August and September.—*Journal A. M. A.*, Jan. 25, 1919. (*M. P. H.*)

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Prevention of Blindness.—The North Carolina State Board of Health, through its press articles, has started a campaign to bring before all mothers the provisions of an act of the General Assembly of 1917 creating a law to prevent soreness in the eyes of the newly born. This act provides for the free distribution by the Bureau of Epidemiology of the State Board of Health of silver nitrate in 2, 6 and 12 drop ampoules to physicians and midwives for use in the eyes of the newly born. A violation of the law, which absolutely requires that such drops be used, constitutes a misdemeanor and imposes a maximum penalty of $50 fine or thirty days on the county roads.—*N. C. State Board of Health*, Feb. 5, 1919. (*M. T.*)

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Educating the Public Against Venereal Diseases.—The United States Public Health Service has recently issued a series of bulletins, pamphlets and posters in its educational campaign against venereal diseases. The titles of some of these are: Keeping Fit, The Problem of Sex Education in Schools, When They Come Home, Shall We Finish the Fight, On Guard, and Man Power. The pamphlets are attractively illustrated, and contain not only information regarding the venereal diseases, but sound advice on how to live a clean, healthy sex life.

The four great factors that produce human ineffectives as judged by recent experiences in the draft are defective eyesight, poor teeth, bad feet and venereal disease. The proper care of the eyes may be maintained by working in a good, clear light at all times; by keeping the eyes at least 12 inches from the work; by resting the eyes at least every hour, either by closing the eyelids for a few minutes or by looking at a distant object; by avoiding eye strain of any kind; and by avoiding the use of the common towel. The teeth may be preserved by regular cleaning and by proper dental care once every six months. The feet should be washed frequently and only shoes that fit should be worn.

In order to keep fit, it is urged that the individual should have sufficient exercise of the right kind in the open air; that at least eight hours' sleep should be obtained every night, and that sleeping should occur in fresh air; that the workroom of the individual should be properly ventilated; that the individual should have proper food; and lastly, that he should have a sex life which is healthy.

The importance of the glandular secretions to the health of the body is emphasized. Special reference is made to the secretions of the testicles which are absorbed by the blood and carried to all parts of the body. Masturbation is condemned as an evil practice; also because it weakens the will power and moral fiber of the individual. Athletics, a sense of self-respect, and will power will cure this habit. Thinking about sex or looking at things which excite sex feelings should be discouraged by the individual. Nightly emissions should be considered as normal functions of the body if they do not occur too often. To avoid these emissions it is wise not to sleep on the back or to drink much water before retiring, or to be covered too warmly. If an individual is troubled with a venereal disease or any sex difficulty, only a thoroughly reliable physician should be consulted. It is also urged that proper sex education must be begun early in the child's life under favorable surroundings and by a good teacher. A fine, moral relationship with girls should be encouraged in every way.—*Venereal Disease Bulletins*, U. S. P. H. Service. (*M. P. H.*)

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Marrying in the Same Shop.—In an article on Occupational Propinquity as a Factor in Marriage Selection, by Donald M. Marvin, that appeared in the September, 1918, number of the *Quarterly of the American Statistical Association*, we read that a girl's choice of her vocation has a directing influence in deciding from which occupation she will marry her husband; further that it will be possible to predict with as much certainty as is offered by the Mendelian Law what the chances are for a girl entering a certain occupation to have her children enter the same occupation. Specialization of ability through heredity, environment and training, is favored by the propinquity of like types of men and women in industry. Sex propinquity in modern industry seems destined to affect the matings, and through the matings, the type of the coming generation. (*M. T.*)

Popular Drive for a Tuberculosis Sanatorium.—In February a mass meeting was held in Boston to inaugurate a popular drive for $500,000 for a central New England Sanatorium. It is the purpose of the committee in charge to erect a large establishment at Rutland, Mass., to care for the great middle class of tuberculates, who are too poor to afford the best private sanatoria, and who do not wish to go to municipal or state sanatoria. It is also planned to utilize the proposed sanatorium for the returning tuberculous soldiers.

Dr. E. H. Kelley, Massachusetts State Health Commissioner, showed how preventive health work has saved thousand of lives, outlined the great value of health administration in the reduction of communicable diseases generally, especially those that are insect-borne or in which it is possible to control the environment. He noted, however, that less has been the progress against respiratory diseases and those spread by contact.

Dr. David R. Lyman, president of the National Tuberculosis Association, noted how the practising physician is often too busy to treat the chronic case of tuberculosis, which often times looks quite well, and emphasized the importance of reaching the incipient case if hoped for progress is to be made against the disease. He characterized the sanatorium as a university of public health and one of its prime accomplishments is that it teaches the tuberculous how to live hygienically and makes of them in turn the missionaries of the gospel of healthy living.

Miss Mary Beard, president of the National Public Health Nurses' Association, told of the great psychological factors that enter into the work of the community nurse.

Dr. G. E. Vincent, president of the Rockefeller Foundation, outlined the anti-tuberculosis work that Americans have been conducting in France, laying especial emphasis on the work conducted by Dr. S. M. Gunn. He noted that the factor that the Americans brought into this great effort in France was the unification and coördination of the numerous individual forces that already existed for combatting the great white plague. (*M. P. H.*)

Educational Prophylaxis of Venereal Diseases.—Starting with the obviously true assumption that voluntary exposure of the individual is the chief factor in the spread of venereal disease, the author develops the theory and practical mechanism or means of appeal to the individual. Educational prophylaxis does not mean a series of sermons on morals. It does mean a simple, clear presentation of the biologic principles underlying sex physiology, and sex psychology and this is the basis of the lecture work used in the Army and Navy.

In addition to the appeal to reason, an appeal or rather a statement of facts so presented as to develop a sense of fear of the results of incontinence is of great value. The fear that their physical efficiency as fighting men will be lowered has proven a factor in the restraining of Army and Navy men from illicit intercourse.

This knowledge concerning the cause, method of transmissal and results of venereal disease, and in addition the appeal to the sentimental side of the man is accomplished by lectures, motion pictures and exhibits all carefully arranged and staged so as to make a lasting though not gruesome impression on the mind of the soldier or sailor.—H. E. Kleinschmidt, *Social Hygiene*, January, 1919, 27. (*D. G.*)



Busy A. P. H. A. members will be the first to fulfill the quota of "a member per member." Decide NOW Whom you will invite to membership.

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Prophylactic Vaccination Against Pneumonia.—During the past four years, Lister, working in South Africa, was able to immunize a large number of individuals by prophylactic vaccination against the three most important types of pneumonia that are prevalent there. Not a single case of pneumonia of the type immunized against, developed in the cases that were treated. The vaccinated individuals were under observation for nine months. In the U. S. army thousands of troops were vaccinated against types I, II, and III, after very favorable results were obtained when the first men were inoculated. The vaccine, as prepared, contains the three types of pneumococci. A single dose of 1 cc. given subcutaneously is sufficient to produce immunity. The reaction is not more severe than that following the anti-typhoid inoculation.—*Medical Insurance and Health Conservation*, January, 1919. (*M. P. H.*)

To Keep School Child in Health.—The Massachusetts State Department of Health is performing a valuable public service to citizens of the state by sending out vast quantities of "Food Rules for School Children" to teachers and parents throughout the state.

FOOD RULES FOR SCHOOL CHILDREN.

1. Begin the day by drinking a glass of water, and drink at least six glassfuls during the day.
2. Do not go to school without eating breakfast.
3. Eat regularly three times a day.
4. East slowly and chew all food well.
5. Drink milk every day—four glasses are not too much.
6. Eat some breakfast cereal every day.
7. Eat some vegetable beside potato every day.
8. Eat bread and butter every day—dark coarse breads are best.
9. Eat some fruit every day. Spend pennies for apples instead of candy.
10. Do not eat candy between meals. Eat candy and other sweets only after a regular meal.
11. Do not drink tea or coffee; it does the body no good, but harms it.
12. Do not eat or touch any food without first washing the hands.
13. Do not eat fruit without first washing it.
14. Do not eat with spoon or fork that has been used by another person without first washing it.
15. Do not drink from a cup that has been used by another person without washing it.
16. Do not eat from the same dish with another person. (*M. T.*)

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Nature of the Sex Problem.—The stand often taken by even high authorities that gonorrhea and syphilis are not crimes but diseases is shortsighted. It is well recognized that 90 to 95 per cent of venereal disease is caused by the breaking down of moral barriers. These barriers constitute the first and firmest line of defense against the venereal plague and every effort should be exerted to preserve it intact.

The moral barrier is largely under the command of those social agencies that concern themselves with the morals of society. The pulpit should recognize that the aid it can give in keeping this line of defense intact offers the biggest opportunity to do lasting good. The difficulty lies in presenting an understanding of the problem to others. Much study has been given to this phase and the wise man will avail himself of the quantities of carefully prepared literature before attempting to lecture on the subject.

Once the moral barrier has been broken through the second line of defense is sanitation. Here the moral problem becomes a physical problem and the health officer takes command. Gonorrhea and syphilis must be dealt with as are smallpox, tuberculosis and typhoid fever, that the disease be not spread to the morally loose, the innocent traveler, the unsuspecting companion, to the wife and to the children even unto the third and fourth generation.—*N. C. Health Bulletin*, Oct., 1918. (*M. T.*)

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Extra Cantonment Work Around Camp McClellan.—As an example of what the Public Health Service has done in controlling disease and improving sanitary conditions in extra cantonment areas, the following account bears witness: The P. H. S. took charge of the health work in Calhoun County Ala., in August, 1917. Since then campaigns have been waged to improve sanitary conditions in many ways. Over 50 square miles of land, and 125 miles of streams and ditches were continuously treated in order to control malaria, so that in 1918 not a single individual in the county became infected there. Surveys were made of rural conditions, leading to the installation of 538 sanitary concrete privy vaults, the protection of well water supplies and the screening of numerous homes. Typhoid fever was greatly reduced during 1918. Anti-typhoid inoculations had been given to 12,313 individuals. It is believed this aided materially in diminishing the amount of typhoid fever. Milk and other food supplies were placed under sanitary control, 700 cows were tested for tuberculosis, and a modern pasteurizing plant is now nearing completion; 2,010 food handlers were thoroughly examined of whom 28 were excluded because of venereal disease. The schools were inspected and the school children examined. Public health nurses were employed. A laboratory was established, and the regular tests performed by a public health laboratory were carried on. During 1918, when smallpox became unusually prevalent, 16,874 persons were vaccinated. A venereal disease clinic was established and 305 cases were treated free. The vital statistics were also greatly improved. In addition, liquid chlorine machines were introduced to safeguard the public water supply. Now that the emergency no longer exists, and the P. H. S. officials are about to give up the work, the county is planning to carry on the work itself along lines recommended by the Service.—*Report to Calhoun Co., Board of Health*, Jan. 22, 1919. (*M. P. H*)

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If interested in the New Members, look for their Names in the Colored Insert.

A New Disease.—In the spring of 1918 a number of cases of an unusual disease appeared in London and Sheffield, England. The symptoms were languor, apathy and drowsiness which increased to lethargy. There was also a progressive muscular weakness which finally disabled the individual completely. There were also unusual cerebral and cerebrospinal symptoms. At first it was thought to be due to food which had been infected with Bacillus botulinus but this hypothesis was adequately disproved. It was also believed that the disease might be poliomyelitis but this explanation also proved unsatisfactory. The disease died out so rapidly, that the experiments which were started had not made sufficient progress either to identify the disease or to recognize the etiologic factor. The disease is called *encephalitis lethargica* and has been placed on the list of notifiable diseases throughout England and Wales for a period of one year. It is possible that the lowered resistance of the people enables a hitherto saprophytic organism to become a temporary pathogen. This would emphasize the importance of maintaining the vital resistance of the individual at its highest point at all times. Reference to the disease is made editorially in the *Journal of the A. M. A.* for February 8, 1919. A special report on the disease has been issued by the Local Government Board. (*M. P. H.*)

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Epidemiology of Diphtheria.—A statistical study of 1,000 deaths due to diphtheria has brought out several interesting points. It was noted that laryngeal diphtheria was far more prevalent than other forms, pharyngeal was next, and the nasal form last. The frequency of deaths from the laryngeal form may be due to failure of physicians to detect this deeper infection, and to faulty technique in taking cultures. For proper technique one needs good light.

Analysis of the deaths by days elapsing before a physician was consulted shows that 23 per cent were sick a week before medical advice was sought. Of the total deaths 7.6 per cent occurred in "unrecognized" cases, that is in these cases the physician failed to take cultures and have them examined. It was noted that sudden death occurred in 5.2 per cent of cases, and in many cases lack of nursing care and early release were the responsible factors. One striking feature was noted—in no instance was antitoxin given intravenously. It is recommended that this procedure be used in those cases which are seen late in the disease.—Carey, B. W., *Boston Med. and Surg. Jour.*, January 16, 1919, 67. (*D. G.*)

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New Modified Milk for Infant Feeding.—From three years' experience at the Cleveland Babies' Dispensary based upon observation of 311 cases the conclusion is reached that it is possible to obtain an excellent nutritional result, according to our present standards, without the aid of butter fat in the food, if the food is similar to breast milk in its protein, carbohydrate, salt and water content, if the substituting fat contains an adequate amount of fat-soluable growth factor, and if the fat is similar to breast milk fat in other respects, namely, in saponification number, iodin number, etc., and if, further, an anti-scorbutic is given with this product, called S. M. A. (Synthetic Milk Adapted).

Better results have been obtained with it than with any other method which was used. And inasmuch as it can be used for small infants, a few weeks old, as well as for older infants up to a year without changing its character, but merely regulating the daily amount, it also appears to be a great factor in simplifying infant feeding, from the standpoint of the physician and the infant welfare station.

In addition the feeding of this product makes possible the saving of a large part of the butter and milk supply.—Gerstenberger, Ruh, et al., *Amer. Jour. Dis. of Child*, January, 1919, 1. (*D. G.*)

("Synthetic Milk Adapted" would seem to be a somewhat misleading term. A true synthetic milk should be built up from materials other than milk, while milk is set forth by these authors as the basis of their product.—Ed.)

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Disinfection of Diphtheria Carriers.—The author confirms his previous good results in the disinfection of diphtheria carriers by means of nasal and pharyngeal insufflations of powdered anti-diphtheritic serum. According to him this treatment is actually the best to rid the carriers of their germs. Surprisingly good results were obtained by the same method using anti-meningococcus serum.—Roskam, J., *Ann. Inst. Pasteur*, June, 1918, 255. (*D. G.*)



You'll feel mighty cheerful when you realize that you have done your bit toward a more effective A. P. H. A. Decide now whom you will invite to membership.

Beginning Adolescence and Susceptibility to Tuberculosis.—In their campaign against tuberculosis health officers have long recognized the special danger of tuberculosis infection in infancy. In seeking to guard against such infection they have established preventoria, provided for the pasteurization of milk supplies, and sought to educate the public regarding the peculiar susceptibility of infants to tuberculosis infection. However, when one considers how difficult it often is to separate the infant from the open case of tuberculosis, especially tuberculosis in the mother, it will not be surprising to find that the first year of life still witnesses a very high death toll from tuberculosis infection.

The remarkable statistical inquiry reported by Hess, in the Journal A. M. A., January 11, 1919, shows that still another age period must be regarded as critical for tuberculosis—namely, the period of beginning adolescence. It is curious that this fact has heretofore escaped recognition. After all, its discovery required only the simplest kind of a tabulation of tuberculosis deaths by age of the decedent.

Taking the actual number of deaths from tuberculosis in New York, Chicago, and Philadelphia and arranging them by single years of life, Hess presents the following instructive table. In considering these figures it will be well to bear in mind, as he suggests, that the susceptibility to infection must antedate, by at least a year, the mortality from the disease.

DEATHS FROM TUBERCULOSIS (ALL FORMS) IN THREE LARGE CITIES ACCORDING TO SEX AND YEARLY PERIODS.

Years	New York 1916		New York 1917		Chicago, 1917		Philadelphia, 1917		Total		Grand Total
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5	22	25	23	29	7	9	4	4	56	67	123
6	22	17	16	14	9	9	11	8	58	48	106
7	16	13	24	13	9	6	9	4	58	36	94
8	17	14	19	13	3	6	3	9	42	42	84
9	12	9	10	20	3	2	5	1	28	32	60
10	9	17	10	9	1	4	4	5	24	35	59
11	12	10	9	9	5	3	6	6	32	28	60
12	10	15	10	**22**	1	6	1	7	22	**50**	72
13	17	**32**	17	23	4	**11**	4	8	42	74	**116**
14	11	31	15	38	7	12	2	**20**	20	101	121
15	18	42	15	34	6	21	5	18	44	115	159
16	**26**	54	**45**	75	4	17	**14**	26	**89**	172	261
17	61	60	49	60	**15**	31	18	25	143	176	319
18	64	84	65	75	12	30	15	24	156	213	369
19	82	87	74	97	37	36	30	39	223	259	482
20	91	82	100	102	45	42	37	38	273	264	537
21	94	86	101	99	38	47	37	31	270	263	533
22	112	106	105	98	53	50	38	41	308	295	603
23	107	105	117	111	49	67	38	36	311	319	630
24	93	98	121	96	69	48	40	25	323	267	590
25	130	98	124	108	40	50	49	41	343	297	640
26	110	104	140	109	74	51	38	44	362	308	670
27	131	98	137	84	70	49	47	22	385	253	638
28	135	111	149	96	84	49	49	27	417	283	700
29	120	78	135	81	61	48	36	32	352	239	591
30	150	97	155	92	67	43	46	36	418	268	686

This table shows that there is a marked increase in the absolute mortality from tuberculosis at about the thirteenth year of life (last column). The sudden increase corresponds to maturity, and, it will be noted, occurs in girls at 12 and in boys at 16 years of age.

"How" says Hess, "are we to interpret this sudden increase of deaths from tuberculosis? The most convincing interpretation of these figures seems to be that they are governed by the onset of maturity, by the evident but little understood forces that become potent at puberty. No other explanation accounts so fittingly for the sudden and precocious alteration in the reaction of the female to tuberculosis infection, and to the later but equally significant impetus in the mortality of the male."

Here, then, is a definite task for health officers and others engaged in preventive medicine—to so rouse public interest in the increased susceptibility of children at puberty, that parents will make every effort during this critical period to safeguard the health of their children. On the whole this ought not to encounter any serious obstacles; good food, plenty of fresh air, sufficient rest and recreation, the correction of physical defects—these are practically attainable in most cases and will work wonders. (*C. F. B.*)

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Infant Welfare Clinics in Small Towns.—The plan followed by the Minnesota Board of Health for the establishment of infant welfare clinics in the smaller towns is as follows: When a request for a clinic is received the head nurse visits the community, explains the object of the work, advises what is necessary in the way of equipment, volunteer assistants, etc., and a day is set for the clinic. In a letter to the local physicians inviting them to attend it is indicated that healthy babies as well as sick ones (up to age of 5 years) will be received, advice given as to proper diet, general hygiene, etc. These clinics are continued at two or three months intervals only upon condition that the community employ a public health nurse to do follow-up work. —Huenekens, E. J., *Archives of Pediatrics*, December, 1918, 718. (*D. G.*)

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Germinated Beans and the Prevention of Scurvy.—It has been noted by Chick and Hume that germinated pulses are rich in antiscorbutic vitamines. This fact was utilized by the author in treating many cases of scurvy among Serbian soldiers, by feeding beans which were allowed to germinate. The results obtained were remarkable; and the conclusion is reached that dry beans develop upon germination an amount of antiscorbutic vitamine equal to, if not greater than, that contained in fresh lemon juice. These results point to the practical application of germinated pulses for the prevention of scurvy and in the opinion of the author this would be the easiest and cheapest method by which to prevent the occurrence of scurvy in an army in the field.—Wiltshire, H. W., *Lancet*, December 14, 1918, 811. (*D. G.*)

Statistics on the Influenza Epidemic in New York City.—The epidemic in New York City began on September 15 and ended on November 16. During this period 10,886 deaths from influenza and 9,722 deaths from lobar and bronchopneumonia were reported. This epidemic proved to be much more fatal than any of the previous pandemics of this disease. It also differed from that of 1891 in that the mortality in the age groups up to 55 was from twice to fifteen times as great in 1918. Above 55, the mortality was about the same in each epidemic. Furthermore it is true that the age groups under 15 suffered very little from the infection. Since these age groups include the bulk of the public school population, the agitation for closing the schools during the epidemic was without any foundation. Sixty-seven per cent of all the deaths due to influenza and pneumonia occurred in the age group from 15 to 45; 1,013 deaths due to influenza-pneumonia, occurred among those in the 28th year of life. This age suffered most. Next came the age of 29, with 817 deaths; then 30, with 730 deaths; then 24, with 530 deaths.

The lowest number of deaths reported for any single day was 12. This occurred on September 15, and the number increased daily, until October 20, when 809 deaths were reported. This was the maximum number of deaths for any one day. The week showing the highest mortality was the fifth when 5,260 deaths were reported. The rate of increase of influenza deaths ran parallel with the increase of pneumonia deaths. The epidemic followed practically a similar course in Philadelphia, Baltimore, Buffalo, Boston and Newark. The death-rate per 1,000 population in these cities for the week showing the maximum mortality was as follows: Philadelphia, 138; Baltimore, 119; Boston, 84; Buffalo, 80; Newark, 54 and New York, 48. The death-rate per 1,000 population for these cities for the period of the epidemic was Philadelphia, 53; Baltimore, 47; Boston, 40; Buffalo, 33; Newark, 32; New York, 27. The epidemic seemed to affect the large cities in the middle west less than the Eastern centers of population.

The following table is of interest because it shows the effect of the epidemic on different portions of the population in New York City.

District Number	Population	Race	Population per Dwelling	Death-Rate per 10,000 from Influenza-Pneumonia
1	102,000	Russian, Polish, Austrian Jews	60	16
2	131,000	"	60	14
3	75,000	Italian	50	18
	84,000	Italian	47	24
5	110,000	Americans, Germans, Irish	30	22
*6	45,000		16	17
*7	34,000		14	15

*Districts 6 and 7 abounded in private houses and high class apartments. Sanitary conditions here were ideal.

—Dr. William H. Guilfoy, *Monthly Bulletin*, N. Y. C. Department of Health, December, 1918. (*M. P. H.*)

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The Next Step in the Tuberculosis Movement.—The *British Journal of Tuberculosis* (January, 1919) in a symposium on the "Next Step in the Tuberculosis Movement" has gathered communications from the leading medical men and public health workers in England. According to Dr. E. W. Hope two things are essential: first there must be available a specially qualified staff of trained clinicians to make early diagnosis; and secondly there must be sufficient institutional accommodation for cases needing this form of treatment. Sir Clifford Allbutt maintains that prolonged sanatorium residence is to be deprecated because it is "a loose-end kind of life." He suggests the colony, where life becomes more serious. Sir Thomas Oliver points out that farm work cannot long be endured by many men, and for them occupational inducements must be held out, such as is obtained at tuberculous colonies. J. C. Smyth recommends the establishment of complete state control of the tuberculous, which should include a scheme for the compulsory segregation of the infectious, and their maintenance in colonies. In the opinion of Claude Lillingston the present trend is toward the sanatorium colony, where the consumptive may remain for years, partly as a worker, partly as a patient, happily filling his life with useful avocations. According to R. S. Walker the next step in the crusade will be the provision of hospitals for advanced cases and the opening of open air schools for delicate children.

(*D. G.*)



If the Association sent a representative to personally ask you to co-operate in the campaign, would you refuse him? Of course not! Then won't you give a signed letter from your president the same courteous response.

Fit to Win.—At the Boston City Club, recently, Major W. H. Sawyer of the Venereal Disease Division, S. C., presented the educational moving picture entitled "Fit to Win." This is the same film as the one entitled "Fit to Fight," but is adapted to the conditions now, when the men are returning from the war.

Dr. E. R. Kelly, who presided, summarized the accomplishments of the campaign waged by the Massachusetts Health Department against venereal diseases during the past year. Twelve thousand cases of venereal disease were reported. Of these 3,500 were cases of syphilis and 8,500, of gonorrhoea. Reporting of cases is done entirely by the use of numbers instead of names. Free treatment is offered to those who cannot pay. Arsphenamine is employed for this purpose. This chemical is manufactured by the state at the cost of about 25 cents a dose. It is estimated that 100,000 to 150,000 doses can be manufactured a year. Before the war, salvarsan cost $4.50 a dose. The development of arsphenamine is the result of special researches carried out under the direction of the Massachusetts Health Department. In addition, 28,000 specimens were examined in the State laboratories for venereal disease. The program also calls for a campaign of education. This consists of lectures, selected literature and in addition, the individual education of the person affected. Steps are also taken to compel the infected persons to take the necessary treatment. Nearly 50 per cent of the cases reported as dangerously careless, are being compelled to take treatment. The other cases are being investigated and located. Some attempt is also made to repress street solicitation. This work is accomplished through the police. The campaign is also attacking the quack doctor. Dr. Kelley is very well pleased with the results and looks forward to even greater success in the future.

Mr. Kline who is in charge of the insane asylums in Massachusetts said that of admissions to the insane asylums, about one-half were venereal, and could have been saved from the asylum if they had been treated early enough. He emphasized the enormous cost which the state must bear to care for these individuals. Thus for the coming year, it will be necessary to have an appropriation of $6,000,000 in addition to a special appropriation to provide for 450 additional admissions to the asylums. It costs $6.59 per week to maintain each one of the inmates and an average case lasts about three years. The more important of the venereal diseases in relation to insanity is syphilis. Five per cent of the insane finally have paresis. In the recent drafts, 56,256 men were discharged because they were suffering from mental or nervous diseases due to syphilis.

Major Sawyer told how the military authorities controlled venereal disease not only in the army, but also in the civilian population about the camps. This is the first time in the history of the army that such steps were taken. Five out of every six cases of venereal disease that were found among the troops were contracted in civil life, before the draftee entered the service. The rate at which the men contracted venereal disease after they were in the army was 15 per 1,000 per year. This is an exceedingly low rate. So far as possible every case of venereal disease that developed was traced to its origin, and steps were taken to prevent additional infections. Red light districts were closed, street walking was kept down to the lowest possible degree and clinics were established in the extra-cantonment zones. These were under the supervision of the U. S. Public Health Service. Major Sawyer emphasized the fact that the venereal disease fight is of very recent origin. Until recently neither the states nor the service had any power to deal with serious cases of venereal disease or the purposeful shipment of venereals from one state to another. It is important for health workers in this campaign to realize that the greatest motive for action is the health motive and not the moral motive. (*M. P. H.*)

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Red Cross and International Health Conservation.—Through the energetic leadership of Mr. H. P. Davison, chairman of the American Red Cross, there has been formed a League of Red Cross Societies of nations whose purpose is "not only to cure disease, but so far as practicable to cleanse the world and prevent disease and suffering." At the present time, the Red Cross societies of the five great Allied powers—United States, Great Britain, Italy, France and Japan—are represented in the League. It has been decided to call a conference of the Red Cross societies of the world, at Geneva, thirty days after peace shall have been declared.

It is planned that the first efforts of the League will be to "cover the subjects of public health and sanitation, tuberculosis, nursing, child welfare, malaria, and certain other infectious diseases. There would be developed at Geneva an organization which would receive from every Red Cross society in the world any information of interest and importance bearing upon the various subjects in which they were interested. This organization would immediately communicate such information to every other Red Cross organization in the world. By this method the entire world would be kept fully informed of the latest and best practices in various subjects. It is expected that there will be established in Geneva, a bureau which will devote itself, not to the actual study of human diseases, but to the coördination of the results of such studies. —*N. Y. Times*, February 22, 1919. (*M. P. H.*)

A Tuberculosis Colony.—It has been commonly noted that tuberculous patients will not remain for prolonged treatment at a sanatorium. This question has been investigated and it has been found that where provision is made for interesting and suitable work patients can be retained for a very long period. The second factor of importance is the payment of a wage or bonus for work done—for it is obviously not only inexpedient but wrong to turn patients into "servants" of the institution. Far better is it to organize definite trades in properly constructed and well lighted and ventilated workshops, each trade being a definite unit conducted on business lines. With well regulated hours of work and with suitable environment the patient becomes less self-centered and rapidly ceases to be engrossed in his feelings and his symptoms, and attains a growing confidence in his strength and in the improvement of his position.

Consumptive labor can under special conditions be employed without detriment to the health of the patient. At Papworth Hall Colony where the matter has been investigated, patients reside in model cottages in the village, carrying on their trades and so far maintaining their health. In connection with this colony there is a very large poultry farm, a joinery shop, a cabinet maker's shop, and a boot repairing shop. The wages for the work done in these shops are paid out of the receipts from the sale of the goods manufactured, and it is interesting to note that in the boot repairing department competition with the outside world has resulted in a satisfactory manner. The industry is run on strict commercial lines. In addition the colony has its hospital for advanced patients and veranda wards for less severe cases.—Varrier-Jones, P. C., *British Jour. Tuberculosis*, January, 1919, 14. (*D. G.*)



NO CHANCE FOR TUBERCULOSIS HERE.

Much has been said and written about the advantages of open-air rooms in schoolhouses and of roof-gardens. The charming view here presented, through the combined courtesy of the People's Institute and the Child Health Organization, illustrates the latter far better than can any description. The place is the roof of Public School No. 40, in New York, and these little children from the lowly homes of the city are combining joy and benefit. The marks in the foreground betoken games for out of school hours; the children are in the poses of a dancing lesson,—"the joy of expression in rhythmic exercise," it has been admirably expressed,—while the environment is that of the busy, bustling metropolis.

STATE HEALTH NOTES.

Notes on Legislation.—In Ohio a bill introduced by Senator Davis of Youngstown and now in the hands of the public health committee of the upper house is intended especially to relieve insanitary conditions in thickly settled districts due to stream pollution. Efforts of the State Department of Health to improve conditions under existing laws has been unsuccessful, hence the proposed legislation. It undertakes this by the creation of joint sanitary districts.

Ohio has under consideration the "big health bill," namely that introduced by Representative Hughes to revise the system of local health administration throughout the state. The bill proposes to organize each city of more than 25,000 population and each county into a health district under a whole-time health officer. This bill, which has been reported favorably, will, if passed, provide for the whole state the standard of public health protection now enjoyed only by the largest cities.

In Minnesota there is a bill before the legislature which proposes to establish a board of health for each of the counties with authority to make and publish orders and regulations not inconsistent with the statutes of the state. Approval of such regulations by the State Board and by the attorney general is necessary to validate them and following such approval violation of such regulations shall be a misdemeanor. The bill enters into detail in its seventeen sections, outlining organization, duties of county boards, requirements for officers, relationships of parents, etc. It does not, however, provide for full-time county health officers.

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Illinois.—During the first week in March five cases of so-called lethargic encephalitis have been officially reported to the Division of Communicable Diseases of the State Department of Public Health, and a number of other cases unofficially reported are being investigated by district health officers. On March 7th lethargic encephalitis was made a reportable disease in Illinois through rules and regulations issued by the Department of Public Health.

On account of the increased demand for full-time medical health officers, which has followed the recent epidemic of influenza, the State Department of Public Health has established a registry for such public officers. Questionnaires are being sent to physicians interested in public health work who are presumed available for municipal health positions. Qualifications indicated in these questionnaires are passed upon by a committee of physicians appointed for that purpose, and the applicants are graded according to their special training and experience. These questionnaires will be furnished to all health officers desiring municipal positions in Illinois on application to the Director of Public Health, State House, Springfield.

Conferences are being held in different sections of the state by representatives of the State Department of Public Health, the Illinois Tuberculosis Association, the Boards of County Supervisors and the Trustees of County Tuberculosis Sanitaria for the purpose of outlining the initial plans for the thirty-three county tuberculosis sanitaria whose creation was determined at the autumn election of last year. All of these sanitaria will be free for rich and poor alike, and will have in connection with them county tuberculosis dispensaries, and free visiting nurse service. Forty county tuberculosis sanitaria have been established in the state during the past two years, largely through the efforts of the Illinois Tuberculosis Association.

In conjunction with the work of the Division of Social Hygiene of the State Department of Public Health, the Division of Diagnostic Laboratories has announced free Wassermann tests for all persons regardless of their financial condition. In times past, such tests were made by the state only for indigent persons. The adoption of the new policy has resulted in a very large increase in the number of specimens examined.

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Indiana.—Statistics compiled by the State Board of Health, and just completed, show the awful havoc wrought by influenza in the months of September, October, November and December, 1918. The grand total of deaths from influenza-pneumonia in the months named, was 9,114. In the same months of 1917, the deaths from the same causes totalled 961. We therefore, says the report, must credit the increase of 8,153 deaths to influenza-pneumonia. The report says there were more deaths of children than was first supposed. Six hundred and fifty-two infants under one year succumbed to the disease, while 1,001 died in the age period of 1 to 5. In the age period of 20 to 30, the deaths numbered 2,479; 30 to 40, 2,019. There was a considerable drop after the age of 40 as appears from the fact that in the next ten-year period 40 to 50, there were 620 deaths. And the drop continued, for in the age period 50 to 60, there were 298 deaths; 60 to 70, 265.

The report says, "If Indiana had had efficient all-time health officers, very probably one-half of this slaughter would have been prevented."

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Kentucky.—The first step towards the organization of the Kentucky State Public Health Association was taken on February 17, when a gathering of citizens assembled in Louisville at the call of Col.

Arthur T. McCormack. A plan of organization is to be presented shortly, when the association will be formed. Dr. Lee K. Frankel was the principal speaker and outlined the coming importance of work in public health. "We are at the beginning of a movement for the benefit of the public health," said Dr. Frankel, "but there are certain fundamental things that we must realize. First of all that training is necessary, if we are to do efficient health work. At the present time we are in need of trained health workers who shall be well paid and able to give their entire time to their public health duties." The speaker called attention to the scanty pay of the average administrator of health, made note of the effect of politics in the selection of these men, and asserted that in this country there are many of them who lack the very foundations of the education which should qualify a man for such a position.

⚜

Maryland.—A conference of the Boards of Health of Maryland was called to order in Baltimore in February with some 130 officials registering names. The project has been under consideration for some time, but on account of the war it has not hitherto been practicable. The morning session was devoted to outlining the six departments of the State Board, each director speaking of his own department, and the organization of public health work in the counties by Dr. John A. Ferrell of the International Health Board. In the afternoon four papers were presented, "Tuberculosis," by Dr. John S. Fulton; "Venereal Diseases," by Major William H. Sawyer, M.C., U. S. A.; "Local Public Health Administration in the States," by Dr. Allen W. Freeman, Ohio State Health Officer, and a lecture by President Goodnow of Johns Hopkins.

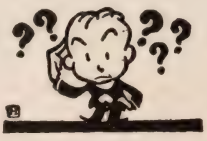
For the evening session Dr. William H. Welch, President of the Maryland State Board, Dr. Alan J. McLaughlin, formerly Massachusetts State Health Commissioner, and Dr. Benjamin S. Warren, Assistant Surgeon-General, U. S. P. H. S., were the speakers, and there was an exhibition of the venereal diseases films. The morning session of the second day took up the questions of closing schools in times of epidemics, vaccination of school children against smallpox and influenza in Maryland, with special speakers and general discussion.

Massachusetts.—Boston is planning to enlarge its health program. Dr. W. C. Woodward, Health Commissioner of the city of Boston, is planning to enlarge the activities of his department. He proposes to add to the personnel of the department sixteen new inspectors with an increase in the pay-roll of $27,400 per annum. It is planned to have a supervisor of housing at $4,000, to establish a bureau of social hygiene with a supervisor at $3,000, a child hygiene bureau whose director shall get $2,500, and a bureau of public health education with a supervisor at $2,000, together with a statistician at $2,000 a year. (M. P. H.)

At the meeting of Boston citizens to present the plans for the Central New England Sanatorium, Dr. Eugene R. Kelley, State Health Commissioner, took the opportunity to refute the claims of some who assert that public health work is of little consequence. Such individuals base their statements on the idea that health authorities were really powerless against the influenza epidemic, but the statistics of health work tell a very different story. Even with the influenza mortality, which pushed up the deaths per thousand of population to 18.7, the figure was less than the usual death-rate of only thirty years ago. The rate in Massachusetts from 1885 to 1888, which were normal years, was 19.5. Public health work may be credited with so great a decrease in the mortality rate that a return to the old figure for a single year seems like a calamity. Instead of showing that health administration has done nothing, the outbreak of influenza emphasizes the splendid work that has been accomplished almost imperceptibly in the reduction of the toll of disease. (M. G. H.)

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New Jersey.—In the extension of child hygiene work through the State of New Jersey one of the problems which the division has definitely attacked is that of bringing under a central control the many agencies which work along child welfare lines. The plan is being developed in close coöperation with all the interested societies, the Child Welfare Committee of the Council of National Defense taking the lead. At this date agreement has been reached that there shall be a State Council of Child Wel-



Think! Are your school medical inspectors members of the A. P. H. A.? the industrial sanitarians? The members of your health department? Call them up, write them, or see them before you forget.

fare or Child Hygiene, whose chief function shall be so to plan the work of the state that multiplication of effort and waste of resources shall be avoided. Propaganda and legislative work will be left to this council. It will be affiliated with the American Association for Child Hygiene. The member societies maintain their identity, but, in their child welfare activities, accept the plan of the council and otherwise place their resources, so far as possible, at its service; as for example: the Motor Corps of the National League for Women's Service for assistance in rural districts, and Red Cross nurses and supplies where the war need for them has passed. The name by which the council shall be called has not yet been decided upon, as there is a sharp difference of opinion among the members as to whether welfare or hygiene is the more inclusive and the more significant term.

Baby welfare stations are increasing in number, there being nine in operation now under the supervision of the division and four more soon to be opened.

The Division of Midwifery has become active under the newly appointed supervisor and has begun study of the midwife situation in New Jersey. The names of the licensed midwives in two counties have been secured and a personal visit to the home of each has been made, with a view to discovering the character of the work done by her. Already several abortionists have been found and their licenses have been revoked.

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New York City.—During the current season the Health Department, in cooperation with the Department of Education, has been carrying forward series of lectures in Brooklyn and Manhattan addressed to adults and to which school children have not been admitted. The series, which presents two lectures by each speaker in different halls and two days apart, includes for its authorities, Dr. S. Josephine Baker, Dr. Maude Glasgow, Dr. H. C. Ferris, Dr. S. Dana Hubbard, Dr. I. H. Goldberger, Miss Josephine Biederhase and Dr. E. Eliot Harris, and gives studies on the child as affected by the war, the abnormal child, the common eruptive diseases of children, physical efficiency and the elements of nutrition.

The Health Department has worked in coöperation with the Federal authorities in a venereal disease campaign, which has endeavored to secure more complete reporting on the part of the physicians, and the more complete education of the people. A new plan has been under investigation and test for filtering the outflow of sewers, a device that is mechanically operated and is apparently working successfully. There has been a reorganization of the Division of Industrial Hygiene which includes a new corps of medical and lay inspectors as well as clinic physicians.

The announcement is made of a practical training course in public health administration to be given by the Public Health Committee of the New York Academy of Medicine in coöperation with the New York Bureau of Municipal Research. The course will be six weeks in length, beginning April 30, the first three weeks of which, till May 23, will be devoted to lecture conferences on special subjects, the remainder of the time being given to field study and observations in institutions in and about New York City. The list of speakers in the conferences is particularly attractive, including as it does so many of the American Public Health Association members: President Frankel, Dr. Sedgwick, Dr. H. W. Hill, Dr. C. V. Chapin, Dr. L. L. Lumsden, Alice Hamilton, M. D., Dr. James A. Miller, Ella Phillips Crandall, R. N., Dr. Charles F. Bolduan, Dr. George W. Goler, and others. Dr. Carl E. McCombs at 261 Broadway, Bureau of Municipal Research, is in charge of the enrollments.

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New York State.—A conference of the sanitary supervisors with the directors of divisions of the State Department of Health was recently held at the Department's offices at Albany.

At the first meeting which was held in the amphitheatre of the Albany Medical College, Dr. H. A. Bray, acting superintendent of the New York State Hospital for Incipient Tuberculosis at Raybrook, gave an address on the best methods of diagnosing incipient tuberculosis. X-ray plates were demonstrated.

Dr. J. S. Lawrence, chief of the Bureau of Venereal Diseases, discussed pneumonia serum and its administration. Dr. J. C. Ayer, of the same bureau, demonstrated the administering of arsphenamine. The meeting was also attended by health officers from Albany, Schenectady and Rensselaer counties, members of the local medical profession and senior medical students. In the evening a talk was given at the Elk's Club on syphilis and gonorrhea by Dr. Honsinger of the Bureau of Venereal Diseases, the talk being followed by a presentation of the film, "Fit to Win." The second day, a report was given by Dr. Charles C. Duryee on his work of scoring health activities in cities. This report was followed by a history of influenza epidemics by Dr. Otto R. Eichel. A conference was also held between the chief of the Bureau of Venereal Diseases and the members of his staff.

There is in progress a Residence Course for Health Officers, under the auspices of Syracuse University, which is not limited to health officers but is open to

all physicians who wish to acquaint themselves with the latest developments in public health work.

A new graduate course is also being given on infectious diseases and public health through the coöperation of the Albany Medical College and the State Board of Health. The course which is open both to physicians and health officers has no connection with undergraduate instruction.

Capt. J. Herbert Brewster and Color Sergeant C. Alpha Howland, members of the Engineering Division, have returned from service with the American Expeditionary Forces in France and are expected to report for duty as assistant engineers in the Department at an early date.

Captain Brewster was commissioned as First Lieutenant in September, 1917, and was ordered overseas in February, 1918, with assignment to the 116th Engineer Regiment, 41st Division, which was engaged in replacement service. In May, 1918, Captain Brewster was placed in command of Company D, 116th Engineer Regiment, receiving his commission as Captain in September.

Color Sergeant C. Alpha Howland enlisted in July, 1917, and was made First Sergeant of the 102d Engineer Train attached to the 27th Division, The New York State National Guard Division, which trained at Spartanburg, S. C. This division was ordered to France in April, 1918, and as is well known has been in some very heavy engagements. Sergeant Howland was engaged in the supply train service and saw considerable service on the front line positions until ordered to the Candidate Officers' Training School. He had finished the course in this school and was to be commissioned at the time of the signing of the armistice.

This state is presenting to its citizens some striking health facts, for example, that every year one Ohioan in every 700 dies of tuberculosis, coupled with which is the information that each advanced case is a focus for further infection unless very carefully looked after, and that every incipient case, which might probably have been cured, may develop into an advanced case, lacking this care. The fact is pointed out that, despite the importance of the measure, half of the counties of the state have failed to take advantage of the law which permits the establishment of inter-county hospitals, while not a single county has as yet established a tuberculosis dispensary.

In its educational material with reference to typhoid the state sets forth the fact that "all that is necessary to stamp out typhoid is to prevent the contamination of food and water by filth." There has been a decrease in the number of reported cases during the past year of about 10 per cent, but the authorities call the attention of the people to the fact that "Ohio is still behind the leading states in this respect."

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Pennsylvania.—Col. Edward Martin has been appointed Commissioner of Health for the State to take the place of Dr. Samuel Dixon, deceased some months since. In the interim Dr. B. Franklin Royer has been Acting Commissioner, resigning from the Board a month ago. Doctor Martin announces these appointments: Dr. Howard Hull, Camp Hill, Cumberland Co., to be Chief Medical Inspector; Dr. Leon Gans of Philadelphia to be chief of the Genito-Urinary Laboratories, and Dr. John L. Laird to be Chief of the Laboratory Dispen-



Wake up and climb on the band wagon. Price of admission: one new member for the A. P. H. A. Everybody's doing it!

Ohio.—Legislation to provide a full-time health officer for every section of the state, adequate nursing service, the strengthening of measures against venereal disease, the lowering of the typhoid rate by strict supervision, the reduction of diphtheria mortality by furnishing free antitoxin, and better care of infants, is in part what is considered in the Hughes bill now under consideration. The establishment is provided for of more than 100 health districts instead of the 2,200 that now exist, and these will require a full-time health officer each against which the state has now only five such officers.

saries. Doctor Hull was Associate Chief Medical Inspector under Doctor Royer, whose former place he now fills; Doctor Gans moves into the former place of Doctor Laird, who in turn takes the position formerly occupied by Dr. J. B. Rucker, Jr., resigned. Doctor Hull is a native of Chambersburg, educated in the public schools of Pasadena, Cal. He is a graduate of the high school of Philadelphia, was graduated at Jefferson Medical College in 1908, receiving the gold medal in Obstetrics and Pathology. He was successively in the Philadelphia Hospital for Contagious Diseases, commissioned in the Medical

Reserve Corps, First Lieutenant in the Medical Corps, U. S. A. Attached to the Nineteenth Infantry he was sent to Vera Cruz. He resigned from the army in 1915 to become Associate Chief Medical Inspector under Doctor Dixon. Doctor Gans is a graduate of the University of Pennsylvania in 1905 and became resident physician in the Philadelphia Polyclinic Hospital. He was surgeon in the Out-Patient Department of the Medico-Chi and taught for nine years in the college. He served as surgeon in the Spanish-American War and in 1917 was enrolled as Captain in the Medical Corps, U. S. A. He originated the "Personal Touch" method for securing the services in the Medical Reserve Corps, first used in Pennsylvania but subsequently adopted by the Surgeon-General for all the states. Doctor Laird is a graduate of the University of Pennsylvania in 1906, and till his connection with the State Health Department was a practising physician at Reading.

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Rhode Island.—In October, Gov. R. Livingston Beeckman called Dr. Lydia Allen DeVilbiss, Director of the Division of Child Hygiene, Kansas State Board of Health, to make a study of health conditions affecting children and to formulate a program for Child Welfare. The program outlined by Doctor DeVilbiss includes the following recommendations:

Infant Hygiene. The establishment of a Division of Child Welfare and a Division of Vital Statistics in the State Board of Health, also provisions for the prompt reporting of births and deaths.

School Hygiene. The establishment of a Department of Health and Physical Education in the State Normal School and the employment of a Director who shall be *ex-officio* State Director of Medical Inspection in the Schools; a revision of the school laws permitting boards of education to employ school nurses and physicians and to expend school money for the correction of health defects, and providing for the annual physical examination of school pupils, teachers and janitors, also sanitary inspection of school buildings.

Children in Industry. Amendments to the factory inspection law increasing the age limit and the educational qualifications for employment. Under the present Rhode Island law a child who is 14 and who can read and write a few simple English sentences can obtain his working papers.

Crippled, Defective and Dependent Children. Recommending a state psychiatrist to examine such children, especially institutional children and children brought before the Juvenile Court.

The report also included a recommendation for the appointment of a Children's Code Commission to undertake a more extensive study of the laws affecting the welfare of children so that they may be revised and codified.

A number of bills covering points of the program have been introduced in the R. I. Assembly.

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Virginia.—Dr. E. C. Levy, formerly Health Officer of Richmond, has been appointed Director of Public Welfare of the same city and has entered into his new duties. This department now undertakes the whole of the functions of the old Board of Health together with several other activities. Dr. Roy K. Flanagan, who succeeded Doctor Levy as Health Officer of Richmond, has now accepted a position with the State Health Department. Dr. Powhatan S. Schenk, for the past ten years Health Commissioner of Norfolk, has been appointed Director of Public Welfare, a department that includes not only the health functions, but those of the city charitable and correctional institutions. Within the care of this department will be included the city clinics, police surgeons, together with the customary items of public markets, city veterinarian, etc. The present year sees the inauguration in Norfolk of an intensive campaign for the control of venereal disease. The department has established a hospital exclusively for this group of maladies and has purchased two other buildings, one for detention house for incorrigibles and another for the extension of the clinic which was established in September, 1918. Since then more than 3,000 cases have been treated.

The Virginia Anti-Tuberculosis Association obtained a budget of about $10,000 to make surveys of tuberculosis similar to those of Michigan. The survey force included a director, a field nurse and a physician. The director undertook an educational campaign by means of lectures before women's clubs, charity societies, school leagues, lodges and industrial societies. The nurse went into the field with the director and visiting local physicians enlisted their coöperation for clinics. During the first fifteen months of operation twelve sets of clinics were held. No complete record of applicants has been kept, since frequently in the country districts an entire colored congregation would present itself for examination. In the first county surveyed, which had an average of 75 deaths a year, the Association has now 225 cases under supervision. Approximately 50 cases have entered the state sanatoria in addition to others which were sent to local hospitals wherever such institutions were available. In two communities nurses were employed by local committees. It is planned to increase the scope of the work. The legislature of Virginia has passed a direct tax law to be used for additional hospitals. The field work is believed to be an important method of educating these populations.—*Bulletin National Tuberculosis Association.*

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh and P. M. Holmes.

Effects of Dust Inhalation.—Some dusts are dangerous; others are harmless. Why? In an admirable article, A. Mavrogordato gives the results of painstaking experiments which explain why there is such a variety of reactions to dust inhalation, and why certain dusts are deadly and others innocent. Dusts from the following materials were used in the experiments,—coal, shale, flint, flue, precipitated silica, and quartz from the Transvaal. The practical aim of the inquiry was to determine what material could be safely used for "stone dusting" as in coal mines (to prevent explosions), and to devise some means of treating the dangerous dusts so as to nullify their evil effects. The experiments were performed in the laboratory of Doctor Haldane at Cherwell, Oxford. All the dusts were examined under the microscope directly and with crossed Nicols which showed that coal, shale, and precipitated silica dusts are amorphous; flint, flue, and quartz dusts, on the other hand, showed double refraction, angulation, and sharp edges. All are hygroscopic; coal dust most so, flue dust least so. Guinea-pigs were used throughout the experiments. They were exposed to the various dusts two hours a day for twelve consecutive days (24 hours all told) in a closed apparatus especially designed to permit constant observation and frequent sampling to determine the concentration of the dust cloud surrounding them. An electric fan in the bottom of the box kept the dust in motion. The author exposed different sets of pigs to varying amounts of dust of each type, the idea being to approximate the exposures to those found under working conditions. Mixed coal and flint dusts were also used. Some of the animals were killed immediately at the close of the experiment, others at intervals of a week, three weeks, three months, and ten months. Sections from the lungs and films from the cut surfaces were then microscoped.

The results showed that with *intense dusting* the effect of all the dusts was practically the same (congestion, cell proliferation, pigmentation, emphysema, but no fibrosis, although this might have developed had the animals been preserved longer). Three animals died of acute pulmonary edema while being dusted, possibly pneumonic infection in lungs irritated by dust similar to the "Acute Pulmonary Silicosis" occasionally noted in workers, due to inhalation of large quantities of dust over a short period.

When *moderate amounts of dust* were used, certain differences were noted: Coal and shale dusts were readily ensnared by mucus, by the bronchial and pulmonary epithelial cells and cells in the lymphatics, and, eventually, in all cases, expectorated in clumps of mucus. The lungs, after the coal dust exposures, required about one year's time to again pass for normal. On the other hand, flue, flint, and quartz dusts left far more slowly. Shale dust was intermediate. These latter types of dust were absorbed by the cells and remained to the end. They showed little or no tendency to cause an initial catarrhal reaction but, instead, later, conspicuous cell proliferation (with phagocytosis and plasma cell formations). They caused no increase in polynuclear cells nor was fibrosis produced. It was found that colorless dusts blackened the lungs, nevertheless. Coal and shale dusts increased in the lungs at first rapidly, but after about the sixth exposure, the rate of elimination appeared to approach the rate of invasion, so that lungs after twelve exposures were no more ladened than after six. On the other hand, flue, flint, and quartz dusts accumulated steadily though less rapidly as the experiments went on.

To summarize: (1) Coal and shale dusts enter the lungs readily, but, under conditions mentioned, are removed and do not produce permanent lesions. The lungs finally pass for normal (after exposure has ceased and time interval is sufficient). (2) Flue, flint, quartz, and crystalline silica tend to remain *in situ* and form plaques, which later on may be the sites of fibrosis. They produce permanent lesions. (3) Various dusts have different rates of elimination, for such part as is eliminated, hence it is worth while to limit all dust clouds, hoping that the rate of elimination may approach the rate of invasion. Dosage is, therefore, an important factor. (4) Coal dust mixed with small quantities of the more tenacious dusts (flue, flint, quartz, and crystalline silica) gives the impression that it tends to free the lungs of these dusts. This may explain why crystalline silica dust does not always produce grave lung disease, *i. e.*, it is inhaled along with some substance which produces catarrh and consequent expectoration. (5) The various dusts fed per mouth for four weeks showed no accumulation in the digestive canal (intestinal mucous membrane and abdominal lymph glands).

Under the conditions of these experiments:

Dusts that make mischief are dusts that accumulate (flint, quartz, flue, crystalline silica).

Dusts that are eliminated are dusts that produce a marked initial reaction with much shedding of epithelium (coal, shale).

Dusts that accumulate do not produce so marked an initial reaction, there being much less shedding of epithelium.

Dusts that produce an initial reaction tend to carry out with them the more inert.—A. Mavrogordato, *Jour. Hygiene*, London, Oct., 1918, pp. 439–459. (*P. M. H., E. R. H.*)

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Final Report of British Committee.—The British Ministry of Munitions has issued the final report of the Health of Munition Workers' Committee. The various problems covered by the memoranda have been brought together into one report and emphasis is given to the close relation and interdependence which exist between the problems involved. Conclusions regarding the various problems have been summarized. It is pointed out that it is yet too early to draw any final conclusion as to the permanent effect on the health of the munition workers of the abnormal conditions which existed during the war. The committee states, however, that all the recommendations contained in the memoranda have been generally accepted as reasonable and have been widely adopted. A list is presented of the memoranda together with the issues of the *Monthly Review* or bulletins of the Bureau of Labor Statistics in which they have been summarized or printed in full.—*Monthly Labor Review*, Bureau of Labor Statistics, VII–3, Sept., 1918. (*R. P. A.*)

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T. N. T. Poisoning.—The salient points in connection with T. N. T. poisoning are summarized and the fact mentioned that the diminution now shown in incidence of the disease brings out the value of scientific research into causes of industrial diseases. The most common symptom in connection with poisoning is toxic jaundice. It was for this reason that an order was made under the Factory Act, making cases of toxic jaundice, instead of T. N. T. poisoning, notifiable. Medical practitioners and occupiers require a definite symptom to guide them. However, for every case of toxic jaundice, there are at least 30 cases showing symptoms of minor illness such as pallor with cyanosis, depression and gastric derangement. The necessary steps for the prevention of poisoning are outlined. Reference is made also to the risk run from nitrous fumes both in the nitric acid plant and nitrating house.—T. M. Legge, M. D., *Monthly Labor Review*, VII–3, Sept., 1918. (*R. P. A.*)

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Poisoning by Dinitrobenzol.—Seven cases were studied. Exposure to the vapors of dinitrobenzol produce a bluish coloration of the mucous membranes, general malaise, etc. These symptoms disappear 2 or 3 days after cessation of work. In some people who develop tolerance the cyanosis is present but no other symptoms appear. Dinitrobenzol is a poison of the blood and also has some action on the central nervous system. It enters the body less by the lungs than directly through the skin as in the wearing of clothes saturated with it. That is why the symptoms appear several hours after the subjects have finished work. Employees should be instructed in the toxic nature of this material.—Steiner, O., *Correspondez-Blatt für Schw. Aerzte*, Aug. 24, 1918, 1139. (*D. G.*)

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Dinitrophenol Poisoning in France.—At least four fatalities have occurred in connection with dinitrophenol work in this country. The hot months will probably see additional deaths unless suitable precautions are taken. Poisoning from dinitrophenol is not uncommon in France and several American factories have adopted the process of manufacture used in France. Two French observers, Professor Martin and Dr. M. Guerbet, point out that certain processes are noted as being attended with poisoning to a greater or lesser extent. The symptoms of both mild and severe intoxication are outlined and the post-mortem appearances described. Emphasis is given to the fact that hot weather hastens intoxication by increasing evaporation of the substances worked with and by diminishing the elimination of the poison through the urine. Dinitrophenol is absorbed through the respiratory tract, the digestive tract and the skin. Derrien's diazotation reaction is described and means for the prevention of poisoning outlined.—Alice Hamilton, M. D., *Monthly Labor Review*, VII–3, Sept., 1918. (*R. P. A.*)



If you don't bring in one new member, how can you expect 2,499 others to bring in theirs? The success of this campaign depends upon you.

Early Diagnosis of Plumbism.—Apfelbach cautions that with the advent of compensation for industrial diseases it behooves the physician to acquaint himself with the early signs and symptoms, so vividly pictured in the text-books. They are often missing in the very early cases of this intoxication. Lead poisoning may be mono-symptomatic; there may be exposure to lead and excretion of lead without clinical manifestations. There are forms of plumbism without the blue line, wrist drop, basophilic degeneration, and colic. Early diagnosis is made upon a history of lead exposure, the presence of constipation plus one of the cardinal symptoms which are colic, constipation, tremor, basophilic degeneration of red cells, blue line, pallor and anæmia; anæmia and tremor are early signs. The writer analyzes the records of three series of cases: First, 934 cases of plumbism reported to the State Department of Labor of Illinois from 1912 to 1917; second, 72 cases personally examined for the author, and third, records obtained from examination of 150 house painters, one-third of whom showed signs of poisoning. Five charts are presented showing the combinations in which cardinal symptoms occur and other pertinent data.—George L. Apfelbach, *Am. Jour. Med. Sciences*, Dec., 1918, pp. 781. (*P. M. H.*)

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Factory Conditions and Tuberculosis.—Using pre-war statistics and personal observations of factory conditions, Professor Moore has written a very excellent article showing the effect of urban employment upon the incidence of pulmonary tuberculosis. The need for a National Industrial Health Service is effectively argued, setting forth a constructive program calling for 1,500 full-time physicians to carry out the plan of action. The big outstanding feature of this article, and a powerful argument in favor of the above services, is that city males in the working age period (25–65) have a death-rate from tuberculosis double that of city females and rural females and males in the same age period. Professor Moore believes that working conditions and lack of adequate medical supervision are responsible for this condition. His statements are supported by four charts illustrating contrasts in death-rates in different age periods and in urban and rural districts.—Benjamin Moore, *Lancet* (London), Nov. 9, 1918, p. 618. (*P. M. H.*)

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Shop Safety Organization.—A suggested plan for shop safety organization is presented as discussed on the last day's session of the Industrial Safety Congress. Details of shop safety organization are given and rules outlined governing the organization and employees. Sources of safety literature and information are outlined and a number of safety, sanitation, and health rules presented.—*Bulletin*, New York State Indust. Com., Vol. IV, No. 3, Dec., 1918. (*R. P. A.*)

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Influenza and Humidity.—In the January issue of *Safety Engineering*, John J. Walsh, inspector of the fourteenth anthracite inspection district, Pennsylvania, presents a very interesting report with reference to influenza among coal miners in Pennsylvania. Some vagaries of incidence of the disease were noticed among the miners. Different mines showed different incidences and even the same mine was not uniform in its different parts, although general conditions were much the same in the different mines. Experiments were made to see if an increased amount of carbon dioxide or a reduced oxygen content of the mine air would have some effect and Mr. Walsh undertook to carry these on. Various factors, oxygen, carbon dioxide, and wet and dry bulb temperatures were plotted against percentages of influenza cases. None of the factors that were expected to influence the rate of disease were implicated, but the relative humidity of the air in which the men worked appeared to follow the rate of incidence. The chart which is reproduced through the courtesy of *Safety Engineering*, tells the story in very direct fashion.—(*J. R.*)

RELATION BETWEEN PERCENTAGE OF MINERS SICK FROM INFLUENZA, AND THE RELATIVE HUMIDITY OF THE ATMOSPHERE IN WHICH THEY WORKED. 14TH ANTHRACITE DISTRICT NANTICOKE, PA.

MINES.	RELATIVE HUMIDITY MINE AIR	PERCENTAGE OF EMPLOYES SICK.
GROUP 1	75-80	61.6
GROUP 2	80-85	56.2
GROUP 3	85-90	52.4
GROUP 4	90-95	39.2
GROUP 5	95-100	18.5

Mechanical *vs.* Natural Ventilation.—Each has its clear and well-defined field, and the problem is to determine what air conditions are desirable in a given space with a given type of occupancy, occupation, etc., and then to decide from experience and from tests in similar buildings whether these conditions can be maintained without mechanical ventilation. If they can, let us by all means make use of natural methods. The factors to be considered are temperature, humidity, and air motion; the dust, bacteria and CO content, and the degree of objectionable odors present, while distribution also should be given due consideration in a confined occupied space. Natural ventilation by means of windows is satisfactory in offices, light manufacturing industries, etc., where the work done or the process carried on does not materially contaminate the air, provided:

(a) 900 to 1,000 cubic feet of space per occupant is available.

(b) Windows are provided on four sides of the space, and have an area of from 10 to 12 per cent of the floor area.

(c) Humidifying devices are installed that will maintain a wet bulb temperature of not less than 57°.

(d) Thorough cleanliness is maintained.

Also natural ventilation by means of windows is possible in school class rooms provided:

(a) Space per occupant is not less than 800 cubic feet.

(b) The window area is not less than 12 per cent of the floor area, with windows on at least two opposite sides of the room.

(c) Artificial humidifying devices capable of maintaining a wet bulb temperature of 57° in cold weather are provided, with air-circulating fans to aid in distribution.

(d) Oiled floors and scrupulous cleanliness are maintained.

On the other hand, patent window ventilators, cloth screens, and similar devices for ventilation of class rooms should be unqualifiedly condemned, since they give consideration only to one of the seven factors concerned, viz., the induction of outside air. To obtain an adequate air supply is the simplest part of the ventilation problem. Children can be made just as miserable by shutting off the heat, with a marked saving in fuel. To get the air space required for window ventilation would mean practically doubling the number of schools in the country. The tests in the New York schools reported by Dr. Josephine Baker may result in good or harm, depending upon how fully they are interpreted. The results should awaken public school officials to their laxity and carelessness in the installation and possibly in the operation of these mechanical equipments. To conclude from the report that natural ventilation is to be preferred to mechanical, would be a grave mistake and result in much harm. Just as our clothing, our food and water supply, the houses we live in are artificial developments, we must conclude that natural methods in ventilation ofttimes are not the best. The cry of "back to nature" is the cry of the reactionary; of the men who acknowledge defeat.—Dr. E. Vernon Hill, *Jour. of Amer. Society of Heating and Ventilating Engineers*, Oct., 1918, pp. 737–742.

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Comparative Casualties of War and Industry.—An interesting comparison of war and industry was that the army of three million Pennsylvania workers suffered 577,053 casualties during the two and one-half years period ending July 1, 1918, with 7,575 fatalities, which is greater than the entire army that Canada and Pennsylvania has sent against Germany. One report was that out of every thousand cases of disability in industry, 547 are cases of disease and 453 are cases of wounds and injuries. Interesting comparisons are also made covering amputations, blindness, and extreme mutilations. This bulletin is also devoted to a discussion of occupations for the disabled.—*The Bulletin, Pennsylvania Department of Labor and Industry*, Vol. V, No. 2, 1918, pp. 121–124.

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Chronic Arsenic Poisoning.—The absurdly insignificant exposures to arsenic which may produce arsenic poisoning in a person who has once been poisoned is well illustrated in the case cited by Samuel Ayres in the *Jour. A. M. A.*, Dec. 28, 1918, pp. 2122–2123.



Most of us are inclined to put off a job of this sort. But the wise man gets it out of the way and then feels better. Get YOUR member today.

The Manual Method Recommended for Resuscitation.—After considering all evidence presented, the Third Resuscitation Commission, composed of fifteen prominent physicians, physiologists, navy, army, P. H. S., and industrial physicians, came to the conclusion that the Shäfer prone-pressure method for resucitating the drowned, those overcome by gas or suffering from electric shock, injuries to the head, injuries to the chest, cases of shock, poliomyelitis, diphtheretic paralysis, poisoning by opiates, etc., was preferable to any of the other manual methods, and the installation of apparatus of the types submitted such as the pulmotor, the lungmotor, and the Meltzer apparatus should be confined, for the present, to properly equipped institutions under medical direction. Dr. Yandell Henderson of Yale University qualified his support of the resolutions, as adopted, with a statement that critical time is lost in waiting for special respiration devices and their application so that those who are first treated manually on the spot have the best chances of recovery. "Thus today, the apparatus in public use is, on the whole, contributing very materially to decrease the saving of life."—*Science*, Dec. 6, 1918, pp. 562–566.

The resolutions as formally adopted by the Commission are worthy of statement in full and are here given together with the official summing up of the general situation.—EDITOR.

In the discussion following the presentation of methods and evidence to the Commission the following important facts were emphasized:

1. That in most accident cases no resuscitation apparatus is at hand for immediate use.

2. That reliance upon the use of special apparatus diminishes greatly the tendency to train persons in the manual methods and discourages the prompt and preserving use of such methods.

3. That police officers or physicians often interfere with the proper execution of manual methods, in that they direct that the patient be removed in an ambulance to some hospital, thus interrupting the continuance of artificial respiration.

4. That in many hospitals the members of the staff are not all acquainted with the methods of artificial respiration.

5. That in medical schools instruction is not properly provided for students in the manual methods of artificial respiration.

In view of these facts the following resolutions were adopted by the Commission:

1. The prone-pressure of Schäfer method of resuscitation is preferable to any of the other manual methods.

2. Medical schools, hospitals, fire and police departments, the army and navy, first aid associations, and industrial establishments in general, should be urged to give instruction in the use of the prone-pressure method of resuscitation.

3. Individuals who, from accident or any other cause, are in need of artificial respiration, should be given manual treatment by the prone-pressure method immediately on the spot where they are found. It is all important that this aid be rendered at once. The delay incident to removal to a hospital or elsewhere may be fatal, and is justifiable only where there is no one at hand competent to give artificial respiration. If complications exist or arise, which require hospital treatment, artificial respiration should be maintained in transit, and after arrival at the hospital, until spontaneous respirations begin.

4. Persons receiving artificial respiration should, as much as possible, be kept warm and the artificial respiration should be maintained till spontaneous breathing has been permanently restored, or as long as signs of life are present. Even in cases where there is no sign of returning animation, artificial respiration should be kept up for an hour or more.

5. A brief return of spontaneous respiration is not a certain indication for terminating the treatment. Not infrequently the patient after a temporary recovery of respiration stops breathing again. The patient must be watched and if normal breathing stops, the artificial respiration should be resumed at once.

6. Artificial respiration is required only when natural respiration has ceased. In cases of simple unconsciousness from any cause in which natural respiration continues, artificial respiration should not be employed without medical advice.

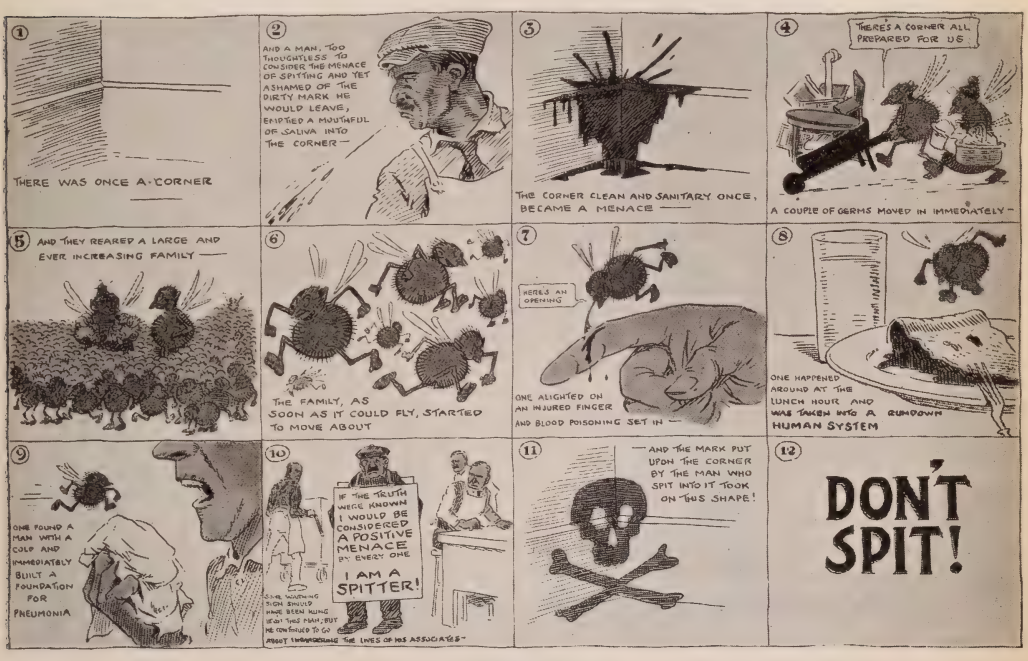
7. The Commission recommends that in cases of gas asphyxiation, artificial respiration, whether given by a manual method or by special apparatus, should be combined when possible with the inhalation of oxygen from properly constructed apparatus.

8. With regard to the employment of mechanical devices for artificial respiration the Commission feels that it ought not at present to take a definite stand either for or against any particular form of apparatus. However, the Commission recommends that the use and installation of apparatus should be confined, for the present, to properly equipped institutions under medical direction. The Commission recognizes the great need of simple devices capable of performing artificial respiration reliably and efficiently. It therefore recommends a careful study of the problem, directed toward *the development of a reliable method appropriate for general adoption.* Such studies can best be carried on in properly equipped hospitals and laboratories.

The Division of Industrial Hygiene and Medicine of the U. S. Public Health Service.—This Division has gotten well under way. Its plans were outlined in the Industrial Hygiene Section of the American Public Health Association in Chicago in December. Past Assist. Surg. A. J. Lanza is in charge. Dr. C. D. Selby is head of the Section on Industrial Medicine, and Mr. Bernard J. Newman, of the Section on Investigations and Research. Other sections are in formation. Zones have been established and offices opened in a number of larger cities. Dr. R. P. Albaugh, formerly Director of the Division of Industrial Hygiene, Ohio State Department of Health, is in charge of the New York office. Dr. P. M. Holmes, formerly with the Division of Industrial Hygiene of Toledo, is in charge of the Philadelphia office. An office has been recently opened in Chicago in charge of Mr. Hobart, and one in Cleveland in charge of Mr. W. H. Gould. The personnel of each office consists of an industrial physician, a hygienist, a sanitarian, an illuminating engineer, a chemical engineer, a ventilating engineer, and a production engineer. The Division will deal with industrial conditions as they affect the health of the industrial worker. A Section on Personnel and Education will be formed to increase the educational facilities in the schools of the country for the training of men in this field. Industrial nurses are also to be trained in hospital training courses.

There will be a registry of industrial physicians, sanitarians, and nurses, to which employers may apply for assistance. The following universities have so far established courses of training in industrial hygiene: Harvard, Johns Hopkins, Ohio, Pennsylvania, and Yale, while Cincinnati and Washington Universities are about to begin. More information may be obtained by writing to the Working Conditions Service, 202 Ouray Building, Washington, D. C.

SPREADING INFECTION.



This cartoon, which is a reproduction of one circulated by the National Safety Council through the courtesy of the B. F. Goodrich Co., tells its own story. It is true that the morphology of the germ is somewhat at variance with the figures that microscopists present, and the modes of life depicted are not precisely in accord with the latest discussions on the subject, but the lesson is brought home by it to the people, 6,000,000 of whom, it is said stop and look at these hints towards a better and safer country to live in. The application is very direct, and the real mark that the expectorant put in the corner is brought out above in such fashion that no one can misunderstand it.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

New Culture Medium for the Isolation of the Glanders Bacillus.—To a glycerine (5 per cent) agar an aqueous solution of parafuchsin is added in the proportion of 1 to 10. Upon this medium B. mallei grows readily, decolorizing the medium. Many organisms are inhibited by the dye.—S. Kondo and H. Oguni, *Jour. Cent. Vet. Med. A.* (*Tokyo*), 30, No. 12 (1917); *Abst. Bact.*, 2, 204 (1918).

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New Specific Serum Reaction for the Diagnosis of Pregnancy.—The reaction gives 94 to 98 per cent correct results. One cc. of serum is added to 0.1 cc. of a combination of placenta and iron. Contact for three hours is permitted. The material is filtered and the filtrate is washed with water. Twenty drops of 18 per cent hydrochloric acid and an equal amount of 50 per cent potassium ferrocyanide are added to the filtrate and the mixture is shaken with 2 cc. of ether. A positive reaction is indicated by a reddish color.—F. Thoenen, *Muenchen. med. Wochenschr.*, No. 24 (1917); *Abst. Bact.*, 2, 254 (1918).

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Typhoid Vaccine as a Therapeutic Agent.—Commercial typhoid, or typhoid-para-typhoid vaccine, prepared for prophylactic inoculations, has unique and very marked therapeutic properties if injected intravenously. The conditions in which it has been applied were acute arthritis, chronic arthritis, gonorrheal arthritis, rheumatic fever, syphilitic affections, psoriasis, lichen planus and eczema.—W. C. Cadbury, *Med. Rec.*, 95, 144 (1919).

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Simple Method of Carrying Meningococcus Cultures.—The composition of a liver-agar favoring the growth of meningococcus is given. The culture is planted into the water of condensation taking care not to tip it over the surface of the slant. After 24 hours at 37° C., carefully tilt the tube so that the water of condensation wets the slope for the distance of about 5 mm. or less and incubate again. The organism will not grow above the old growth as far as the liquid has wetted the slant. This can be repeated until the entire slant is covered. Thus a culture may be kept alive approximately three to four weeks.—J. Bronfenbrenner and M. J. Schlesinger, *Jour. Med. Res.*, 39, 217 (1918).

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The Micro Plate.—Description of method of observing bacterial reactions in very small quantities of medium. The method is serviceable only with solid or semi-solid media. The reactions which may be observed are gelatin liquefaction, amylolytic action, hydrogen sulfide formation, reduction of nitrates, and sugar fermentations.—J. Bronfenbrenner and M. J. Schlesinger, *Jour. Med. Res.*, 39, 267 (1918).

✻

Some Simple Culture Media for B. Influenzæ.—Very profuse growth of *B. influenzæ* can be obtained: 1, from blood boiled in agar; 2, from agar to which has been added some of the clear colorless fluid resulting from boiling blood in water; 3, from agar to which has been added blood which has been broken down by a strong mineral acid. If a strong mineral acid is used to break down the blood, sterile blood is not required. The substance which stimulates the growth of *B. influenzæ* is not the colored fraction of hemoglobin. By the addition of brilliant green to the medium pneumococci, streptococci, and staphylococci are inhibited to a much greater extent than *B. influenzæ*. Cultures of *B. influenzæ* can be kept alive for a considerable period on a blood meat medium.—A. Fleming, *Lancet* (London), No. 4978 (1919).



Ever have this happen in your home? Remember how you felt? Well, that's how the A. P. H. A. will feel when you bring your addition to the family. Hurry! Dr. Frankel and the family are in suspense.

On the Vitamines Available for the Cultivation of Bacteria.—A solution practically free of the albumins and coloring matter of the blood, which contains the substance or group of substances (vitamines or hormones of growth) of indeterminate nature necessary for the cultivation of Pfeiffer's bacillus, can be prepared from washed blood corpuscles or from the whole blood. This solution loses its properties if heated above 100° C. It can be filtered through filter paper or through a filter candle.

The authors recommend the following procedure for its preparation: Dilute the defibrinated blood with four volumes of physiological salt solution; heat this dilution for 15 minutes in a water bath at 80° C., with frequent shaking; filter through filter paper or centrifugalize. If the work thus far has not been carried out aseptically, filter through a Chamberland F. The aqueous solution obtained, added to ordinary culture media in the proportion of 5 to 10 per cent, promotes the abundant cultures of Pfeiffer's bacillus. Even with the weak proportion of 1 per cent, growth is obtained, but the cultures develop slowly and the colonies remain small. The blood of birds, the eel or the horse yields the same results. It is the cellular element, not the serum, that contains the vitamine principle.—Agulhon and Legroux, *Compt. Rend. Acad. des Sciences*, Paris, 147, 597 (1918).

✻

Hemoculture of Typhoid Bacilli in Peptone Glucose Bile.—Bile, to which has been added 1 per cent of peptone and 1 per cent of glucose, is a better medium for the enrichment of typhoid bacilli from the blood than is bile alone. The authors advise the introduction into a certain number of the tubes of a sterile piece of broken glass rod, which with shaking promotes the mixture of the fresh blood and the pepton-glucose bile. If the blood has already coagulated, then only the coagulum is planted in the bile tube and there broken up. (See *Bull. Inst. Pasteur*, 15, 608 (1917).)

If bacterial growth develops, the medium assumes a sanious aspect, becomes clouded and assumes gradually the tint of old chocolate (15 to 24 hours). The paratyphoid bacilli, in contradistinction to the typhoid, gives rise to formation of small bubbles of gas.—Tribondeau and Dubreuil, *Compt. Rend. Soc. de Biol.*, Paris, 81, 130 (1918).

✻

Method of Staining Spirochætes with Formolated Gentian Violet.—

1. Make a thin smear on a slide; dry.
2. Ruge's acetic formol (formol, 2 parts; acetic acid, 1 part; distilled water, q. s. for 100 parts), allow to act for 5 minutes cold; renew this mordant two times.
3. Replace the acetic formol with an aqueous solution of chromic acid (10 per cent) and allow to act for 10 minutes.
4. Wash in absolute alcohol for 2 minutes and flame.
5. Two minutes exposure to formolated gentian violet (hot) (gentian violet, 1 part; formol, 4 parts; alcohol, 10 parts; distilled water, q. s. for 100 parts).
6. Wash rapidly in water.
7. Blacken the violet with Lugol for 5 minutes.
8. Wash, dry in the cold and mount.

The cellular elements have their protoplasm stained violet and the nucleus black. The bacteria are black, the spirochætes, violet, but more often black, even those which, like the spirochæte of hæmorrhagic icterus, take stains difficultly.—P. Spehl, *Compt. Rend. Soc. de Biol.*, Paris, 81, 305 (1918).

✻

Quantitative Wassermann.—The degree of lysis secured in the reaction is compared with known concentrations of hemolyzed blood.—K. Taege, *Muenchen. Med. Wochenschr.*, No. 47 (1917).

✻

Complement Fixation in Tuberculosis.—A series of tests was carried out on 570 soldiers, using a suspension of living bacilli as the antigen, prepared somewhat after the method of Miller. With two slightly different methods the author obtained 74 and 77 per cent of positive reactions in cases with active pulmonary tuberculosis. It was also noted that the test was positive in 21.8 per cent of clinically non-tuberculous cases. The latter figure, which is rather high, may be due to the lighting up of dormant lesions sufficiently to produce antibodies without signs or symptoms.—Fidlar, E., *Lancet* (London), Dec. 21, 1917, 844. (*D. G.*)



Selection Hypothesis (An attempt to furnish a uniform explanation for Immunity, Tissue Immunity and the Manifestations of Immunity).—This article is in the nature of a preliminary communication, edited under the form of propositions, concerning a work which the author promises will appear shortly *in extenso.*

Acquired immunity is the result of a conflict between the cells of the body and the virus. Among the cells, there are strong and weak cells; the weak are the ones first attacked by the virus, then destroyed. This operates, then, to the advantage of the more resistant cells and of those cells which have come to replace the disappeared cells from which they inherit an increased resistance, thus establishing an immunity.

After passages of the microörganisms through the animal, their virulence is increased. The weaker microörganisms succumb in the conflict with the cells; the stronger survive, as well as those derived from them.

According to this hypothesis of the survival of the fittest, the degree of the immunity is in proportion to the number of cells destroyed and to the number of cells replacing those destroyed. If, then, as a result of a natural infection with typhoid, cholera or smallpox, the immunity acquired is more substantial than that conferred by artificial vaccination, it is because in the course of the naturally contracted infection there are many more cells destroyed and subsequently replaced than is the case with vaccination.

The author attempts to explain also upon his hypothesis of selection of the origin of antibodies, their specificity, the reaction of fixation of complement, normal antibodies, and anaphylaxis.—L. v. Liebermann, *Deutsch. Med. Wchnschr.*, Leipz. u. Berl., 44, 313 (1918).

tum; one of these died in 9 days from an amœbiasis of the same type as that of the guinea-pig of the first lot. There were no clinical symptoms of dysentery and no lesions in the rectum; only the cæcum was involved.

The amœbæ recovered from the lesions had the characteristics, nuclear among others, of *dysenteriæ* and differed as much from the amœba normally present in the guinea-pig as from the *Amœba coli.* Chatton presents figures of these non-pathogenic amœbæ side by side with the amœbæ recovered from the experimental lesions.

In a later work published the next year in the same journal, Chatton describes the lesions obtained and states that they have never been observed before in the guinea-pig. They consist of hyperplastic reaction of both epithelial and connective-tissue cells. The epithelial reaction is a Lieberkühnal hyperplasia of the cysto-adenomatous type; the hyperplasia of the glands caused the rupture of the muscular mucosa; the sub-mucosa was infiltrated, greatly thickened and ultimately became hyperplastic itself. This connective-tissue reaction is a sarcomatous neoplasm of the fusocellular type with new formation of vessels by the neo-plasmatic cells themselves; by reason of the rôle of the lymphoid cells in its genesis and from the absence of metastases, Chatton calls it lymphosarcomatoid hyperplasia. These hyperplasias were associated with necrotic lesions and inflammatory reactions, such as are observed in man and the cat. The author thinks that the amœbæ, attracted by the mucus, penetrate the mucosa by the glandular ducts and attack the culs-de-sac where the muciparous cells predominate.—Ed. Chatton, *Bull. Soc. Path. Exot.*, 10, 794 (1917); 11, 28 (1918).



The greater A. P. H. A. is going to be a fine thing for its members. Are you willing to receive the benefits without doing your share?

Experimental Production of Amœbic Dysentery in the Guinea-pig.—Reference is made first to the work of Lynch on the amœbiasis of the Norway rat. Chatton fed three guinea-pigs material containing the cysts of *dysenteriæ.* One animal died at the end of 20 days from cæcal amœbiasis. With a scraping from a portion of this cæcum, he inoculated three other guinea-pigs through the rec-

Bacteriology and Pathology of Influenza.—Because of the variety of clinical types of cases observed the authors are of the opinion that the activating agent is not a single one, but that several organisms are implicated, and that the malady is not a simple but a compound disease.—Whittingham, H. E., and Sims, C., *Lancet* (London), Dec. 28, 1918, 866. (*D. G.*)

Typhoid Fever Occurring After Prophylactic Inoculation.—Occasional cases occur in which the usual preventive inoculations against typhoid fever fail to protect against the disease, most probably on account of the ingestion of virulent organisms in massive doses. To eliminate such occurrences, sanitary precautions should prevail; but they can succeed only by constant attention to the guarding of food and drink against contamination. No false sense of security from typhoid vaccination should be permitted to relax vigilance in this direction.—C. P. Brown, F. W. Palfrey and L. Hart, *Jour. A. M. A.*, 72, 463 (1919).

✻

Filtrable Poison Produced by B. Influenzæ.—It has been found that the influenza bacillus produces a filtrable poison which is lethal to rabbits. It also deteriorates very quickly. An immunity can be produced against it. The serum of immune animals appears to be antitoxic both *in vitro* and *in vivo*. J. T. Parker, *Jour. A. M. A.*, 72, 476 (1919).

✻

Differentiation of Streptococcus Hemolyticus.—The hydrogen ion concentration at which the human strains of *S. hemolyticus* cease to grow is different from that which limits growth of hemolytic cultures from bovine sources; 95 per cent of all the strains examined were accurately and rapidly classified by the determination of their final hydrogen ion concentration in 1 per cent glucose broth. The human type of *S. hemolyticus* reaches a final hydrogen ion concentration of P_H 5.2 to 5.0, and the bovine type of P_H 4.5 to 4.3.—O. Avery and G. E. Cullen, *Jour. Exp. Med.*, 29, 215 (1919).

✻

Staphylococcus Aureus Pneumonia.—Pneumonia associated with *S. aureus* occurred in almost every organization at Camp Jackson. In general, where the total incidence of pneumonia was high there was a correspondingly larger number of *S. aureus* infections. The treatment of this infection of the lung is extremely ineffectual. The prognosis is always grave, though occasionally patients survive. —H. T. Chickering and J. H. Park, *Jour. A. M. A.*, 72, 617 (1919).

✻

Complement Fixation in Influenzal Pneumonia.—The complement binding factor of serum from influenzal pneumonia patients is probably a very weak one. The results suggest strongly that the influenza bacillus forms specific antibodies that will fix complement when this organism is used as an antigen. Polyvalent antigens did not give more positive results than a monovalent one. Serums that gave positive tests were also found more suitable for the serotherapy of influenzal pneumonia patients. Since some of the reactions were inconstant, it must be concluded that the complement fixation test in influenzal pneumonia cannot yet be accepted as a diagnostic test. The influenza bacillus found in more than 80 per cent of the necropsies was used as an antigen.—F. H. Rapoport, *Jour. A. M. A.*, 72, 633 (1919).

✻

Transmission of Infection Through the Eye.—The eyes offer a relatively large surface area for the reception of droplets sprayed from the mouth of other persons. An organism introduced into the conjunctival sac may be recovered from the nose in five minutes, and from the stool in 24 hours. The upper respiratory tract of a person wearing a properly constructed mask may be infected by exposing the eye briefly to direct droplet spray. This portal of entry is of importance in the transmission of acute respiratory infections.—K. F. Maxcy, *Jour. A. M. A.*, 72, 636 (1919).

✻

Complements in Wassermann Reaction.—The complements of fresh guinea-pig serum varied greatly in fixability. Human complement gave much weaker positive results than did guinea-pig complement. Guinea-pig complement left on the clot and kept in the refrigerator remained fairly constant for three days, while complements which had been removed from the clots deteriorated more rapidly. Ramy's method of preserving complement by sodium acetate was a total failure in the author's hands. Glycerol seemed to prevent deterioration of complement for a few days.—E. H. Ruediger, *Jour. Inf. Dis.*, 24, 121 (1919).

✻

New Method for the Identification of Tubercle Bacilli in Sputum.—The method consists in diluting the sputum with an equal quantity of water and adding a drop of ammonia, then allowing the mixture to stand in a water bath at 50° C. for between 15 to 20 minutes, afterwards adding an aluminum sulfate solution in the proportion of 0.5 cc. to 10 cc. of the sputum mixture, and finally centrifugalizing the deposit and examining it by staining in the ordinary way. The experiments showed this method to be superior to all others tried.—K. E. F. Schmitz and K. Brauer, *Centralbl. Bakt. I. Orig.*, 81, 359 (1918); *Rev. Bact.*, 8, 107 (1918).

✻

Simplified Confirmatory Test for B. Coli.—It is suggested that in the confirmatory test for B. coli, Endo slants be employed instead of Endo plates. The inoculations from the lactose fermentation tubes are made in the butt as well as on the slant. It is claimed that the colonies on the slant appear more typical. Ærobic and anærobic growth may be detected at the same time.—*R. L. Kahn, Jour. Bact.*, 3, 555 (1918).

Study of the Pfeiffer Bacillus.—A serum with pronounced specific properties was obtained from animals immunized with the Pfeiffer bacillus. The serum had a distinct curative action and prevented the death of guinea-pigs after inoculation with lethal amounts. The serum of the immunized animals (goats) was toxic in the case of blood withdrawn too soon after the last injection of bacteria. Intraperitoneal injection of the serum killed guinea-pigs and subcutaneous injection caused edema. Serum from blood withdrawn 20 days after the last injection did not show any toxicity.—A. Latapie, *Compt. Rend. Soc. Biol.*, 81, 833 (1918); *Chem. Abst.*, 13, 233 (1919).

✻

Variation in Diphtheria Group.—Twenty-five cultures of members of the diphtheria group isolated from various sources were studied. Variations were noted in morphology, in fermentative reactions and in virulence in subcultures derived from one parent strain. The virulence of a strain is not closely correlated with its morphology, nor is it correlated with its fermentative reactions.—F. D. Meader, *Jour. Inf. Dis.*, 24, 145 (1919).

✻

New Method of Diagnosis of Malaria.—The method depends upon complement deviation in cases of malaria. After a large number of experiments a specific antigen for malaria has been prepared which acted well, diluted 1 to 30 in normal saline. Recently the author used an antigen composed of ten different strains of benign tertian malarial parasites with satisfactory results, and this gives a positive reaction with known cases of benign or malignant tertian malaria. The antigen must be titrated before use to estimate the minimum dose of complement required. The patient's serum is diluted 1 to 10 with normal saline. The test is carried out in the usual way using positive and negative controls. The method used is long fixation in the cold, the tubes being kept overnight in the ice chest. In the morning the sensitized red cells are introduced and the results read after fifteen minutes in the water bath at 37° C. After very prolonged quinine treatment and in cases where there has been no attack of malaria for many months, the blood serum usually gives a negative result. The serums of syphilitic patients give a positive result with this antigen, and it is necessary to exclude this disease.—J. Gordon Thomson, *Brit. Med. Jour.*, No. 3023, p. 628 (1918).

✻

Agglutination in the Diagnosis of Glanders.—Fifteen strains of B. mallei were tested and one obtained which is constant in its agglutinability with positive sera. The best culture medium is glycerin-potato-agar. No phenol is added to the stock nor to the dilution. A negative reaction by a single agglutination test if not confirmed by the ophthalmic and the complement fixation tests does not prove the case negative. All three tests must be performed in order to pronounce the horse negative. A reaction of less than 1 to 1000 by agglutination is not indicative of glanders in the horse.—Olga R. Povitzky, *Jour. Immunol.*, 3, 463 (1918).

✻

Reaction of B. Coli on Endo Medium.—During the growth of B. coli on Endo medium adsorbed lactose is broken down first. After 10 to 15 hours incubation, the trace of adsorbed lactose is probably transformed into lactic and other organic acids, and the colony is colored red. On further incubation, the organic acids are probably reduced by the bacteria to aldehyd and alcohol, which volatilize from the surface, leaving the nonvolatile fuchsin behind, thus producing a metallic sheen. Following this, the organisms attack the nitrogenous material. Ammonia and other substances are produced in which the fuchsin goes back into solution, and ultimate decolorization takes place.—R. L. Kahn, *Jour. Bact.*, 3, 547 (1918).



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LEGITIMATE USE OF NARCOTICS IN WAR TIME.

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Read before Food and Drugs Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

Dr. Bishop here takes up the discussion of one of the greatest problems of the day. This is one of two sterling papers presented at Chicago, for the publication of which the Journal has had a good many requests. It is the intention to follow this by Dr. Bishop's second address to make the story the more complete.

BY "narcotics" in this paper I am referring to the group of drugs typified by, and for purposes of present discussion practically confined to, the opiates, the preparations and derivatives of opium. It is necessary to do this because as it has come to be used the term "narcotics" is synonymous in the minds of many if not most people with a number of drugs of widely dissimilar action and properties, loosely grouped under the title of "Habit Forming Drugs." Although many of these drugs have narcotic properties, their action upon the human body is in many respects totally unlike the action of the opiates themselves. Also the condition resulting from their prolonged and continuous administration is an entirely different condition clinically and physiologically from that manifested in the chronic opiate user. The problems associated with the use of alcohol, cocaine, chloral, cannabis, the various coal tars, etc., differ from each other and all of them are, in their basic medical principles, of an entirely different character from the problems associated with the use of opiates. The erroneous grouping in the minds of legislators, administrators, executives and even the medical profession itself, fostered as it has been by widespread advertising, educational and other publicity of supposedly specific treatments and cures, is, in my opinion, responsible for much of the failure to ameliorate or control existing conditions.

The overwhelming narcotic problem of war time and especially of active warfare is that of the opiates. Opiates form and must continue to form the most indispensable medication, emergency and otherwise for shock, wounds and allied conditions. It may be safely stated that of all emergency medication the opiates would be the last to be surrendered by the in-

telligent physician or surgeon. This is true in every day lay practice and its importance is increased a thousand fold under conditions of active warfare. The opiates possess combined actions and powers not found in any group of drugs. In therapeutic doses they support the heart and circulation, they relieve pain, they hold in check excessive activity of the glands of internal secretion, with all their associated phenomena exhaustion and collapse; they control spasm and they give sleep. In no other drugs or groups of drugs are these properties combined as they are in the opiate group. In the emergency medication of war times opium and its alkaloids, especially morphine, are the medications most responsible for the saving of life and reason. It is not necessary to argue this point with any intelligent physician or surgeon. For the benefit of the laity, however, and for the benefit of the occasional fanatic and hysterical reformer it is well to state that without the use of morphine and other opiates the mortality among the wounded and sick at the front would be vastly greater and that many of those who might survive in spite of its nonadministration to them would bear for the rest of their lives physical and mental consequences of gravest character. The lives and the minds that have been saved by the timely administration of an opiate drug are incalculable. One has only to talk with those who have worked under the stern necessities and emergency conditions of warfare, to appreciate this fact. There is no known drug which will replace clinically and therapeutically the opiate group. At present it is as indispensable in meeting emergency indications as is the scalpel of the surgeon.

It is unfortunate that about the opiates in the popular mind as well as in the minds of too many of the medical profession, has developed a glamour and an association of sensuous enjoyment, debauchery and morbid appetite. The keynote to this was struck by DeQuincy in his "Confessions of an English Opium Eater," and has persisted as a popularly dominant theme in a spectacular presentation of a minor aspect of narcotic result, nourished and kept alive by psychologists and psycharists, sociologists and lay writers, to the obscuring of the vastly more important and vastly more common manifestation and action of opiate drugs. It is a fact that the administration of opiate drugs under certain conditions and especially in certain types of individuals will be followed by euphoric sensations, dreams, stimulated imagination and other psychological manifestations of common knowledge. On the basis of the widespread overemphasis upon these manifestations, the too popular and erroneous conception of opiate use is based with a consequent hysterical, impractical and morbid outlook. It is not generally known that in a vast majority of cases to which opiates have been administered for therapeutic purposes and even in those in whom opiate administration has been continued to the extent of addiction development, these dreams, euphoric sensations, etc., have never been experienced. The vast majority—even of those addicted—have never experienced pleasurable sensations from the administration of opiate drug. This is a fact which is capable of corroboration. They do not use opiates because they like them, but because they have to have them, and it should immediately be taught that it is only in certain types of individual or under certain conditions of drug administration that any pleasure arises from the administration of opiate drugs. There is no educational propaganda which would be of more value in the combating of the popular opposition and fear of all opiate administration than the presentation of

these facts. Such effects are, as a rule, absent following therapeutic administration.

It would be entirely unnecessary to discuss or to apparently defend the use of narcotics in war times if it were not for the fact of recent recognition of the wide existence, rapid growth of opiate addiction in the civilized world. Combined with this is the idea, continually increasing that, as a result of prolonged opiate administration, a certain proportion of our troops will develop this condition. If the facts of addiction were widely known there should be no hysteria concerning and no criticism against opiate medication; even if unavoidably continued to the point of creating this disease. That opiate addiction is and will be one of the medical problems of this war is recognized and must be openly met. In many cases, just as in private practice, the physician is confronted by a choice of evils. To save life or reason he must continue opiate medication even into and past the danger zone of beginning opiate addiction. The appreciation of this fact is becoming a matter of popular recognition and comprehension, and in the present status of narcotic addiction this popular recognition contains grave dangers of hysteria and undeserved and irresponsible criticism. That this criticism is based on ignorance will make it none the less unpleasant and hampering to efficient service.

It should be at once and widely taught that the cases of opiate addiction that follow the war-time administration of opiate do not constitute a new medical problem, but are simply the continuation of conditions which have existed unappreciated and unremedied in this country for over half a century.

When the conditions under which wounded and sick must be handled in the emergencies of warfare, and the higher percentage of urgent and severe cases, are taken into account, it will be found that the proportion of wounded and sick soldiers who will come home from service with this addiction disease is no greater, and is very probably not so great as the proportion of people in private life who have, in the past, contracted this disease and who are even at present contracting this condition as a result of opiate medication, unavoidably or otherwise continued to the point of addiction.

The only reason that this is not now a matter of general recognition and of wide understanding is that well-meant ignorant writers have laid so much stress upon the spectacular and morbid manifestations of underworld and other psychically abnormal and unstable individuals who happen to have addiction, that the popular and even the scientific conception of a narcotic addict is expressed in the term of "dope fiend." The attraction of the morbid and the tendency towards emphasis of the spectacular are very common attributes of the human brain, and many an important fact, the recognition and appreciation and intelligent interpretation of which would point the way towards obvious conclusion and rational remedy lies hidden and unobserved in the glare of the red fire of more spectacular incidentals.

These spectacular incidentals have been the capital and basis of propaganda for the charlatan and the professional performer. Emphasis upon them to the exclusion of the more constant and basic facts of addiction has reacted upon legislators and administrators and the medical profession itself in the creation of the present narcotic situation. There has been altogether too much spectacular painting and presentation of the addicts who show morbid manifestations, and there has been, until very lately, an almost entire disregard of narcotic addiction as it

exists and has existed for many years in the average individual.

Narcotic addiction fundamentally, and as it exists in unknown and unsuspected hundreds of thousands of normal, upright and worthy individuals in all walks of life, from the banker and the judge, and the minister and the physician and the business man, down the entire social scale, and in all lines of human activity and interest, is the narcotic addiction that should be studied and its facts presented to the public. The results of failure to do this in the past are expressed in the condition of the present; endless laws and administrative regulations, practically nothing of clinical or therapeutic appreciation and a golden harvest for the charlatan and shyster and the criminal and underworld commerce.

When the facts of addiction development as a result of unavoidable military therapeutics become known, and they are rapidly becoming known, it will be well to remember and of great value as a balance wheel, that these conditions are no different and exist in no greater relative proportion than the same conditions in civil life and practice in pre-war times. The only difference lies in the fact that in civil life and in pre-war times the typical narcotic addict, who is the average normal man and woman, lived and worked and had his being with his disease undetected and unsuspected, his only mental, psychical and other abnormalities arising from the fact that he lived in constant fear of the detection of his disease and of being rated a "dope fiend," with all that that has hitherto implied in supposed degeneracy, abnormality and deterioration.

As to the illegitimate or non-therapeutic contractor of the addiction condition within the ranks of the army, its dangers are no greater and possibly not as great as in civil life. Some non-medical cases of addiction will develop within the ranks of the army. In anticipation of possible spectacular disclosure and hysterical discussion and criticism and attempts at so-called reform, it may be said that army life and activity and training will probably save thousands of adventurous and more or less idle and ignorant youths imbued with the spirit of curiosity and with lack of normal outlet for physical and nervous surplus energies, from the associations and environment which have, in the past three or four years, contributed so largely to the tremendous increase of the addict of non-medical origin.

It is my belief that the present gathering together under conditions of discipline and training presents an opportunity for the education of the youth of this country as to the physical facts of opiate addiction which should be of incalculable benefit in the solution of the narcotic problem as a whole.

Space is lacking in this paper for the detailed discussion of the physical facts of addiction and of the clinical characteristics and symptomatology and physical phenomena which are its invariable concomitants, which are peculiar to it and which stamp it as one of the most definite clinical conditions and diseases of internal medicine. These characteristics, symptoms and physical phenomena occurring in the newly born, capable of invariable development in experimental animals, are sufficient proof of the existence of a tangible, ever constant, absolutely definite physical mechanism, existing in every case of narcotic addiction, irrespective of what its individual, mental or psychical characteristics may happen to be. The one constant fact of narcotic drug addiction is that it manifests invariably and inevitably and directly consequent upon the continuous and prolonged administration of narcotics to any red-blooded animal, agonizing physical suffering and

peculiar physical signs which can only be the direct manifestation of the workings of a physical mechanism, developed within the body as a result of prolonged opiate medication; and that this physical mechanism in the production of its symptomatology, physical phenomena and signs and physical suffering, is capable of complete and immediate control only by the administration of opiate drug, so long as the activity of this mechanism has not been completely arrested by competent clinical treatment.

I have gone into details of these things far more completely in previous papers. The foregoing opens to discussion the other legitimate use of narcotics in war time. This use is the intelligent administration of opiate in the control and therapeutic handling of whatever cases of addiction are found to exist or shall come to exist within the army. The situation within the army as regards addiction will in a general way be identical with the situation existing in private life. The man who has developed opiate addiction disease will have to have his opiate supplied to him intelligently and with proper appreciation of the symptomatology and reactions of this addiction disease condition until there is equipment and educated personnel provided for him to get intelligent and competent handling. Under any other immediate arrangement the addicted soldier, just as the addicted civilian, will in his desperation and the physical torments of bodily need for opiate drug, endeavor to smuggle, steal or otherwise obtain in any way possible this necessary medication.

I appreciate that fanatics and reformers will severely criticise the statement I have just made. I have argued it more extensively in previous papers, especially in a paper on "The Rational Handling of the Narcotic Addict," read before the Section on Pharmacology and Therapeutics at the Annual Convention of the American Medical Association in 1916 by arrangement of Martin I. Wilbert of the United States Department of Health.

As a result of practical experience and absolute failure of other endeavor, the tenets of this article are now rapidly being adopted. If further proof or evidence is needed, the transcribed testimony of the New York Legislative Committee, under the able and wise leadership and direction of its chairman, Senator George H. Whitney, will supply it. The hearings of this committee and the information contained in the testimony presented before it, will mark one of the first milestones in the proper appreciation of the condition of narcotic drug addiction and its practical handling.

In brief, then, and to recapitulate, the legitimate use of narcotics in the army in war time will be roughly divided into two broad divisions: The necessary administration of morphine to those who are not addicted for the control of emergency or other indication, with which every competent physician or surgeon is familiar. To use morphine in such cases is not only legitimate, but failure to use it would be inhuman and barbarous and result in the loss of hundreds of thousands of lives and the making of wrecks of hundreds of thousands of others. Second, the administration of opiates to those unfortunates, who either through their own ignorance or carelessness or through unavoidably prolonged legitimate or necessary medication have developed in their body the condition of opiate addiction disease—until such time as they can be either furloughed or discharged from active service for the radical arrest by competent medical care of their addiction disease mechanism.

I have a considerable amount of direct

and authoritative information as to conditions and upon specific cases as they existed both before and after our entrance into the war. This is not the time nor the place for detailed discussion of that information. It should, however, suffice to still the voice of any objections and irrefutably answer any arguments against what I have written above. The laity and the mothers and relatives and friends of those in the army and navy will not exhibit panic and fear once the intangible horror and the vague and morbid and erroneous picture of the "dope fiend" is erased from popular conception and replaced by a comprehension of a definite physical disease clinically controllable and therapeutically remediable.

As to what extent narcotic drug addiction disease is going to be a medical sequella of war and of necessary war-time medication, it is now too early and useless to speculate. There was undoubtedly a considerable amount of it following the Civil War, occasional cases of which still exist among the veterans of that struggle, dating back to war-time medication. The Spanish War and necessary medication added to the list of war-time contracted addiction sufferers. Of addiction among those participating in this war, it is at present only possible to recognize the condition as existing.

At a meeting of the Medical Society of the County of New York, where addiction was discussed, Dr. Earle B. Downer, who had been in Europe from the beginning of the struggle, after stating plainly conditions and necessities for opiate medication, and giving an impression of addiction as a result of that medication, summed up the situation somewhat as follows: He said that there were going to be many war-time addicts, unavoidably and necessarily. These addicts were suffering through no fault nor indulgence of their own. When the war was over, and they came for relief, were they to be considered by the medical profession and the laity as degenerates and "dope fiends," or were they to be received and treated as sick people who needed and deserved sympathy and medical help. There must be a great deal of revision of past ideas and past attitude, and there must be a rapid education as to the available facts of narcotic addiction and its humane and rational handling if those of our own soldiers who return addicted, are not compelled to pay an unnecessarily high price for their services to their country.

V

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MOSQUITO ERADICATION IN SOUTHEASTERN PENNSYLVANIA.

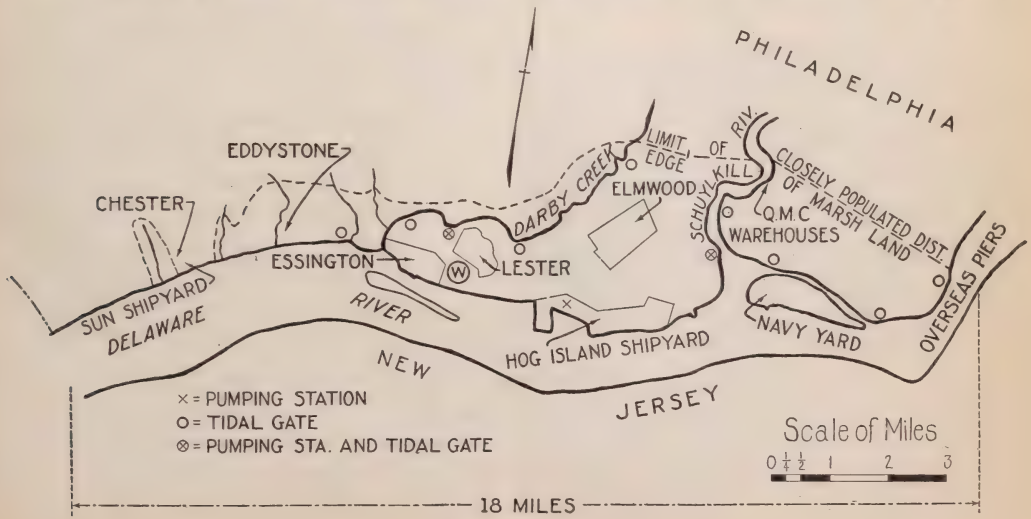
B. Franklin Royer, M. D.,
Acting Commissioner of Health of Pennsylvanig,
and
C. A. Emerson, Jr., C. E.,
Chief Engineer, Pennsylvania Department of Health, Harrisburg, Penn.

There were a great many problems at Hog Island and the mosquitoes formed one of no mean magnitude. What Dr. Royer and Mr. Emerson have done is given in considerable detail because the paper tells other men in other malarial districts what can be done; how to organize and how to accomplish results.

THE southern portion of the city of Philadelphia and the eastern part of Delaware County, comprising a total area of about twenty-five square miles, are for the most part below the elevation of high tide. Vast stretches in this area are unproductive marshland, affording breeding places for millions of mosquitoes which have long been a source of great annoyance to residents in and adjacent to the area and the cause of sporadic cases of malaria.

America's entry into the world war caused a great influx of labor from malarial countries to the industries in this district, making these mosquito breeding swamps a menace to health of prime importance, of interest not only to the municipal but to the state and federal governments. In addition, the interference with the comfort of over 50,000 laborers employed in essential industries in the district and of the 150,000 or more population residing in the territory or on adjacent high lands within easy flight range of mosquitoes breeding in the marshes, had to be considered.

Among the great industries directly affected by this mosquito pest are the Emergency Fleet Corporation at Hog Island, the Sun and the Chester Shipyards, the League Island Navy Yard,



the Westinghouse Electric & Manufacturing Co., the Baldwin Locomotive Works, the Remington Arms Company, the Eddystone Munitions Company, two active rifle ranges, Quartermasters' Storage Depots, Government Embarkation Piers, great coal and merchant piers, enormous oil refineries, etc.

The district has a frontage along the Delaware of approximately eighteen miles and a maximum depth back from the river of about three miles. The total frontage on the Delaware, the Schuylkill and large tidal creeks crossing the area is in excess of thirty-five miles.

Many years ago dikes were constructed along the streams; numerous tide gates were installed and two pumping stations constructed, to hold back the tides and to remove storm water and seepage through the dikes in order that much of the territory might be available for agriculture. The district has gradually developed, the railroads and frontage on navigable rivers offering unusual facilities for commerce, so that now we find numerous villages, the boroughs of Marcus Hook and Eddystone and the city of Chester, in the southern and central portion of the district with the great city of Philadelphia constantly encroaching on the marshland from the north.

The city of Philadelphia had maintained dikes, tidal gates and the pumping station and tributary ditches controlling the five or more square miles of this territory within the city limits. In the Delaware County portion of the territory, however, the dikes were leaking or had actually been breached, tide gates had become useless through neglect, the pumping station had been removed, and drainage ditches had silted full, so that at each high tide much of the territory was flooded.

Early in the spring of 1918 surveys were made and preliminary estimates prepared for abatement of the mosquito menace. After several conferences between the various interests a coöperative scheme was adopted whereby the Emergency Fleet Corporation, the city of Philadelphia, the Navy Department, the Westinghouse Electric & Manufacturing Co., the Atlantic Refining Company, the Pennsylvania State Committee of Public Safety and Defense, the Adjutant-General's Department and the State Department of Health would provide funds or materials to the extent of approximately $275,000 to be spent by the several interests in accordance with the approved plans under the general direction of the state department of health for eradication of mosquitoes in the district during 1918.

The problem was so great and time so limited that it was apparent effective work could not be performed over the entire area in a single season under existing labor conditions. Accordingly it was determined that the first year's work should be confined to an area of about ten square miles having a frontage of approximately eleven miles along the Delaware and extending from Oregon Avenue in Philadelphia, the limit of the low district on the north, to the mouth of Darby Creek on the south.

The generally low elevation of the surface, the great value of the territory for agricultural and for manufacturing purposes, together with the dikes, main drainage canals, tidal gates and drainage pumping station already constructed, made impracticable the adoption of the open ditch drainage system employed on the salt marshes of New Jersey and Long Island with such good results.

The approved plans contemplated repair of dikes and tidal gates and installation of additional pumping stations together with extension of the system of drainage channels and lateral ditches, so that the entire area could be unwatered

and made available for use. As a temporary measure pending completion of this comprehensive program oil and larvicide were to be freely used.

Five pumping stations were planned—three in the territory south of the Schuylkill and two in South Philadelphia. Of these stations two were already available, the Mingo Creek Pumping Station owned by the city, containing two 36-inch diameter, steam driven, centrifugal pumps and a new storm water pumping station in the Hog Island Shipyard containing one 30-inch, electrically driven, centrifugal pump. The effectiveness of the municipal pumping station was increased by providing a motor drive for one of the pumps to supplement the boilers and the area served by the shipyard pumping station was extended by the construction of main drainage channels leading into the yard from adjacent territory. The third pumping station necessary to complete the control of this district was installed by the state department of health and contains a 20-inch, motor driven, low service, centrifugal pump. These three stations have a total rated capacity of approximately 125,000 gallons a minute or sufficient to handle the greatest volume of storm water which the government records indicate may reasonably be expected to fall upon the area south and west of the Schuylkill within any six-day period from the middle of March to the middle of October with a good reserve capacity to care for leakage through the dikes or unusual storm conditions.

One of the first problems was the cleaning and deepening of many of the old dredged channels and natural creeks which formed the main arteries of the drainage system. Additional main channels were constructed, using floating dredges, power excavating machines of various types and in some instances, hand labor. Many miles of narrow lateral ditches were cut through the marshes to lower the general water level and to drain isolated pools which had been formed by construction of railroad and trolley lines, highways and building operations without regard to natural drainage features. This necessitated much incidental work such as lowering of existing and installation of additional culverts beneath main railroad tracks and highways, construction of bridges, removal of telegraph poles, blocking up of buildings, etc. Existing tidal sluice gates were repaired and additional gates installed in sections remote from the pumping stations.

The existing dikes were riddled with rat holes and in some places were of in-



View of State Department of Health Pumping Station on Darby Creek before starting pump.



Pumping Station on Darby Creek after pump had been placed in service. Man in middle background is standing at elevation of high tide on the outer side of the dike. Man in middle foreground is standing at level of water surface as maintained by the pumping station.

sufficient height to exclude storm tides and in others had actually been washed away. The dikes were raised and strengthened in the district adjacent to the pumping station and a regular patrol was organized for maintenance purposes. In the remote districts where the faulty condition of the dikes did not interfere so greatly with successful operation of the pumping station the repair work was postponed until the end of the calendar year.

Work was not commenced until the mosquito breeding season had actually begun and accordingly a great deal of time and money had to be expended in oiling water surfaces and in cutting marsh vegetation to expose the water surface for oiling pending completion of the pumping stations, main channels, dikes, etc. For the oiling operations six central stations having storage tanks of 500 or 1,000 gallons' capacity were established at convenient points throughout the territory. Oil was pumped from these tanks into five-gallon cans and hauled by light motor trucks or wagons to the nearest accessible point and then carried by hand to the oiling gangs in the marshes. The entire area was divided into inspection districts of such size that one man could cover a district in a single day. Each district was inspected once every ten days. The inspector would mark with a red flag each pool where breeding was found and make note of faulty drainage conditions. An oiling gang followed the inspector and the foreman was required to oil thoroughly any pool where a flag had been placed, also to collect the flags as evidence that his men had covered all places needing attention. A general inspector then followed, checking the efficiency of the oiling gang and also the thoroughness of the work of the regular district inspector.

At the beginning of the season there was a dearth of trained inspectors. Accordingly a training school was established and inspectors were put through a regular course for about three weeks to fit them for field work.



Typical main collecting channel leading to Pumping Station.

In order to check the efficiency of the work and to determine the direction of mosquito invasion from outside the district a weekly system of night collections was inaugurated. All mosquitoes captured at each collection point were taken to the laboratory for identification. The various species of mosquitoes found in the district are given in the table on page 332.

In addition to the work in the marshes it was necessary to oil the surface of liquid in the tanks of sewage treatment plants, to treat the water in hundreds of fire pails and fire barrels at building operations, to clean and oil many miles of street gutters, etc.

Local boards of health in eight municipalities bordering on the marshland were instructed in methods for elimination of mosquito breeding throughout their respective towns.

At times as many as 600 laborers and skilled employees were engaged on the work. The following summary gives a

good measure of the main features of the field work:

Total quantity of oil used	55,000 gallons
Existing ditches and channels in area	120 miles
Ditches and channels cleaned	45 miles
Vegetation mowed to expose surface of water for inspection and oiling	1,750,000 sq. ft.
Maximum water surface requiring oil treatment as temporary measure	8,500,000 sq. ft.
Main dikes repaired and strengthened	10,500 lin. ft.
Main channels dredged or deepened	30,000 lin. ft.
Main ditches excavated	21,500 lin. ft.
Small lateral ditches excavated	95,000 lin. ft.



Typical lateral ditch through marsh.

The tides in the district are due to backing up of the river waters by tidal action in Delaware Bay and normally salt water does not occur within ten miles of the territory covered this past summer. The manufacturing wastes discharged upon meadowlands by one of the large industries in the district were sufficiently saline to turn the fresh water marshes into a favorable breeding place for typical salt marsh mosquitoes. This condition was remedied by requiring the company to install a temporary station to pump these wastes into a nearby combined city sewer where they would flow to the Delaware pending permanent rearrangement of the drainage system from the plant.

Several lessons may be drawn from this work, the following being among the most important:

(1) Mosquito eradication work to be successful should embrace the entire general area where breeding places occur. Limiting the work to political subdivisions, operating independently, is not practicable.

(2) A comprehensive coöperative project embracing private corporations, municipal and state agencies is practical, providing the work is performed in accordance with a comprehensive plan previously approved by the various interests concerned, and general direction of the project placed in some unbiased central organization, so formed either by law or mutual consent that its jurisdiction covers the entire territory. This would seem to indicate that general supervision should be placed in some permanent, central authority having uniform powers and responsibilities, such as the state department of health.

(3) Benefits of mosquito eradication work are far-reaching, and include not only increase in value of properties within the immediate district but also general real estate values within a wide area. The same applies to the benefits to public health.

(4) The powers possessed by most state organizations are not suitable for undertaking work of this nature as a routine procedure. It would be desirable that the cost should be borne directly by the properties benefited in proportion to the benefits received, and legislation should be enacted whereby the central authority

can assess benefits either by collection of taxes in accordance with the usual practice or by condemnation and resale of the property. Such legislation should also provide funds for maintenance purposes.

The work carried on under the conditions set forth in this paper has had beneficial results as is proven by the fact that complaints from residents and workers in the district were almost unknown this past summer and that preparations are now being made for the cultivation of large areas of land which for years have remained idle, covered with a luxuriant growth of weeds and water vegetation.

Plans are being prepared for extension of the work next year through the district to the south of that brought under control this past season, and it is hoped that legislation will be enacted whereby this work undertaken as a war measure can become a permanent adjunct of the work of the state department of health, being gradually extended throughout all portions of the state where mosquitoes are sufficiently abundant to interfere with the comfort and health of the citizens.

TABLE SHOWING VARIOUS SPECIES OF MOSQUITOES FOUND IN DISTRICT.

Culex pipiens	(rain barrel or house mosquito). Predominant species throughout territory after July 1st.
Ædes sylvestris	(fresh water swamp mosquito). Predominant species during early summer, decreasing in number as season advanced.
Ædes sollicitans	(white-banded salt marsh mosquito). Taken in territory surrounding Pennsylvania Salt Works.
Anopheles punctipennis	(malarial mosquito). Found in relatively small numbers and scattered breeding places throughout territory. Believed to carry malaria.
Anopheles quadrimaculatus	(malarial mosquito). Found in relatively small numbers and scattered breeding places throughout territory. Known to carry malaria.
Culex territans	Closely resembles *Culex pipiens*. Larvæ found frequently during latter part of season. Does not bite.
Psorophora ciliata	(predacious mosquito). Found in considerable numbers during early part of season, particularly west of Schuylkill River. Largest species in the state. Larvæ feed on those of other species and on each other.
Ædes subcantans	(brown woods mosquito). Taken occasionally during early part of season.
Coquillettidia perturbans	(irritating mosquito). Several specimens taken.
Ædes trivittatus	Several specimens taken.
Uranotœnia sapphirina	Several specimens taken.
Ædes curreii	Found in considerable numbers during June. Very occasionally after that date. Not previously reported for Pennsylvania or eastern United States. Supposed to be a fresh water form of *Ædes onondagensis*, a salt water marsh species of the Pacific Coast. Previously reported in the arid regions of the West and in Canada.

SPECIAL NOTICE—NEW ORLEANS, OCTOBER 27-30, 1919.

Do not forget to make note of the real date of the A. P. H. A. meeting at New Orleans. The executive committee has found that a later time than first suggested will be better for the meeting. For that reason the date has been definitely fixed for October 27–30. Kindly erase the old date from your memorandum and substitute,

"On to New Orleans, October 27-30, 1919."

THE EXAMINATION OF B. COLI IN WATER

Reuben L. Kahn, D. Sc.,
Captain, Sanitary Corps, U. S. Army, Department Laboratory, Southeastern Department, Atlanta, Ga.

Read before Laboratory Section, American Public Health Association at Chicago, Ill., December 9, 1918.

Dr. Kahn goes at the technical details of his examination directly and clearly. He presents the results of experience for the benefit of others in proper sequence and without argument.

1. *Introduction:* In previous studies from this Laboratory[1] the author suggested a simplified procedure for the confirmatory test for B. coli in water. This procedure has been applied during the past nine months to about 300 waters from the Southeastern area of the United States. The tests during this time were completed, as a rule, in from 36 to 48 hours. By this method, lactose fermenting anærobes also, were determined with comparative ease.

This paper will discuss the various phases of the test and will give an outline of the procedure as carried out in the Department Laboratory.

2. *The Presumptive Test:* The medium employed for the presumptive test is standard lactose broth. The employment of a dilute bile medium (250 cc. ox gall in 1,000 cc. lactose peptone broth), appeared promising for a time, inasmuch as it seemed to retard the growth of non-colon forms in highly contaminated waters. This medium, however, was abandoned because of variations in the composition of bile and particularly because of the desirability of employing a standard medium.

The fermentation tests are carried out by means of large test tubes with inverted vials; each tube containing from 11 to 12 cc. of broth. The dilution of the nutrient constituents of the medium resulting from the addition of 10cc. quantities of water to any of these tubes does not appear to interfere with the delicacy of the test. Ten cc. quantities of water were added, in duplicate, to Smith fermentation tubes and to test tubes with inverted vials containing the same medium, and gas production observed after incubation. Over 100 such comparative tests carried out with waters sent to this laboratory for examination revealed no marked change in gas production in the two types of fermentation tubes.

We are not concerned with the amount of gas produced in lactose broth after inoculation with water. The fact that there is gas present is sufficient to warrant a confirmatory test for B. coli.

3. *The Preparation of Endo Medium:* Endo tubes instead of Endo plates are employed, and the medium is prepared in the following manner: Stock quantities are kept on hand of sterile 2 per cent nutrient agar titrated to 0.2 to phenolphthalein; also a sterile solution of lactose and a saturated solution of basic fuchsin in 95 per cent alcohol. Just before tubing, a desired quantity of agar is melted in the Arnold and is rendered 1 per cent lactose and 0.4 per cent fuchsin. The medium is now brilliant red. Enough fresh sodium sulfite is added to render the hot medium light pink (approximately 1 gram of crystalline sodium sulfite or 0.5 grams of the anhydrous salt per cc. of saturated solu-

tion of basic fuchsin). The tubing is carried out in the dark and with reasonable care to prevent undue contamination. Sterilization is accomplished in the autoclave from 5 to 7 minutes at 10 pounds pressure. The tubes are then slanted in the dark, after which they are placed in the icebox and are ready for use. These tubes will keep about three weeks.

4. *The Confirmatory Test:* If B. coli are inoculated by means of a straight wire into the butt and on the slant of Endo tubes, gas and reddening of the medium will appear in the butt and typical colonies on the slant—after 12 to 24 hours incubation. This is the underlying principle of the confirmatory test.

At the appearance of gas in lactose broth fermentation tubes, straight wire inoculations are made from the tubes showing gas, into the butt and on the slant of Endo tubes. The presence of gas in the butt and typical colonies on the slant of these tubes after incubation is considered a positive test for B. coli.

5. *The Differentiation of Lactose Fermenting Anærobes from B. coli:*[1] If a lactose fermenting anærobe be inoculated in the butt and on the slant of an Endo tube, we would expect gas production in the comparatively anærobic butt and no growth on the slant. However, our experience with the behaviour of anærobes found in the waters of the Southeastern area of the United States leads us to believe that probably most lactose fermenting anærobes are able to grow; neither on the slant nor in the butt of Endo tubes. This may be due to the toxicity of the fuchsin, or it may be that the butt of an Endo tube is not sufficiently anærobic for strict anærobes. Whatever the explanation, if gas in lactose broth was due to an anærobe, inoculation in Endo tubes brought forth no growth whatsoever in the butt of those tubes—after prolonged incubation.

Based upon this finding, gas production in lactose broth is considered to be due to an anærobe, if after inoculation in several Endo tubes and 48 hours incubation, either no growth appears in those tubes or a non-colon growth appears on the slant with no gas in the butt.

6. *The Differentiation of Fecal from Non-Fecal Strains of B. coli:* When attempting to differentiate fecal from non-fecal members of B. coli isolated from water, it was observed that those organisms which produced typically metallic colonies on Endo medium gave, as a rule, a positive methyl red and negative Voges-Proskauer test, while those organisms which produced pink non-metallic colonies on Endo medium gave a negative methyl red and positive Voges-Proskauer test. This led to the view that Endo medium might possibly serve as a means for differentiating members of the colonærogenes group,[2] and the following experiments were accordingly carried out: 75 typically metallic colonies of B. coli were picked from an equal number of Endo plates, previously inoculated with human feces—of different origin. On inoculation in Endo tubes, all these cultures produced gas anærobically—in the butt of these tubes. Their behaviour toward the methyl red and Voges-Proskauer tests was next studied. All these organisms were acid or neutral to methyl red and all gave a negative Voges-Proskauer test. B. colaca and B. ærogenes were then obtained from different workers. Four cultures were obtained from Professor Rettger; five from Dr. Rogers; three from Professor Levine, and four from Mr. Rothberg of the American Museum of Natural History.* All these cultures, with one exception, gave a negative methyl red and positive Voges-Proskauer test, and all, with the

* The writer desires to express his indebtedness to those gentlemen for furnishing these cultures.

same exception, produced pink non-metallic colonies on Endo medium.

Without drawing any definite conclusions from these findings, we consider those members of the colon group which produce typically metallic colonies on Endo medium as most probably of fecal origin, while those which produce non-metallic colonies on Endo medium, as either of fecal or non-fecal origin.

It is not improbable that the metallic and non-metallic colonies on Endo medium represent two different processes of metabolism of the colon and colaca-ærogenes groups of organisms.[1] Both groups, when grown on Endo medium, probably split the lactose into lactic and other organic acids. And this may be the dividing line of the colon group from the colaca-ærogenes group. B. coli probably further reduce the lactic acid into aldehyd and other volatile substances. These substances evaporate on exposure to air, leaving the non-volatile fuchsin behind, thus rendering the colonies metallic. B. colaca and B. ærogenes, on the other hand, probably stop at the lactic acid stage. This acid has a tendency to absorb moisture, which tends to keep the trace of fuchsin in solution; the result being, that the colonies are pink but not metallic.

With regard to the sanitary significance of those organisms which give a negative methyl red and positive Voges-Proskauer test, and produce non-metallic colonies on Endo medium, it is well to add that 50 such cultures were isolated in this laboratory from as many specimens of human feces. Recently, Rogers, Clark, and Lubs,[3] out of 177 cultures of the colon-ærogenes group isolated from feces, found 46 which gave a negative methyl red and a positive Voges-Proskauer test. Winslow and Cohen[4] also, in related studies, conclude that "the significance of the ratio between B. coli and B. ærogenes in the sanitary examination of water seems somewhat dubious."

It appears that the only safe conclusion one may draw at this time is that those organisms which give a negative methyl red and positive Voges-Proskauer reaction and produce pink non-metallic colonies on Endo medium, *may or may not be of fecal origin.*

7. *An Outline of the Examination of B. coli in Water:*

(1) Duplicate quantities of 10 cc., 1 cc., and 0.1 cc. water (higher dilutions in cases of contaminated waters) are inoculated in large lactose broth tubes containing inverted vials and incubated at 37° C.

(2) At the appearance of gas in the lactose broth tubes within 48 hours incubation, straight wire inoculations are made from each of these tubes showing gas, to the butt and slant of Endo tubes.

(3) After about 15 to 48 hours incubation of the Endo tubes, the presence of typical or semi-typical colonies on the slant with gas in the butt is considered a positive test for B. coli.

(4) If there be no growth in the Endo tubes after 48 hours incubation, or a growth on the slant which is entirely unlike that of B. coli (with no gas in the butt), the gas produced in lactose broth, is considered to be due to an anærobe.

(5) Waters are also considered negative for B. coli if, after inoculations in lactose broth tubes, gas fails to appear after 48 hours incubation.

(6) A record is kept of all water analyses; and when the test for B. coli is positive, an agar slant is made from an isolated colon colony and the morphology of the organism further studied—this with a view of determining whether organisms not belonging to the colon group are

capable of producing colon-like colonies on the slant and gas in the butt of Endo tubes.

The writer desires to express his indebtedness to Major Homer L Conner, Commanding Officer of the Laboratory, for helpful suggestions in connection with this paper.

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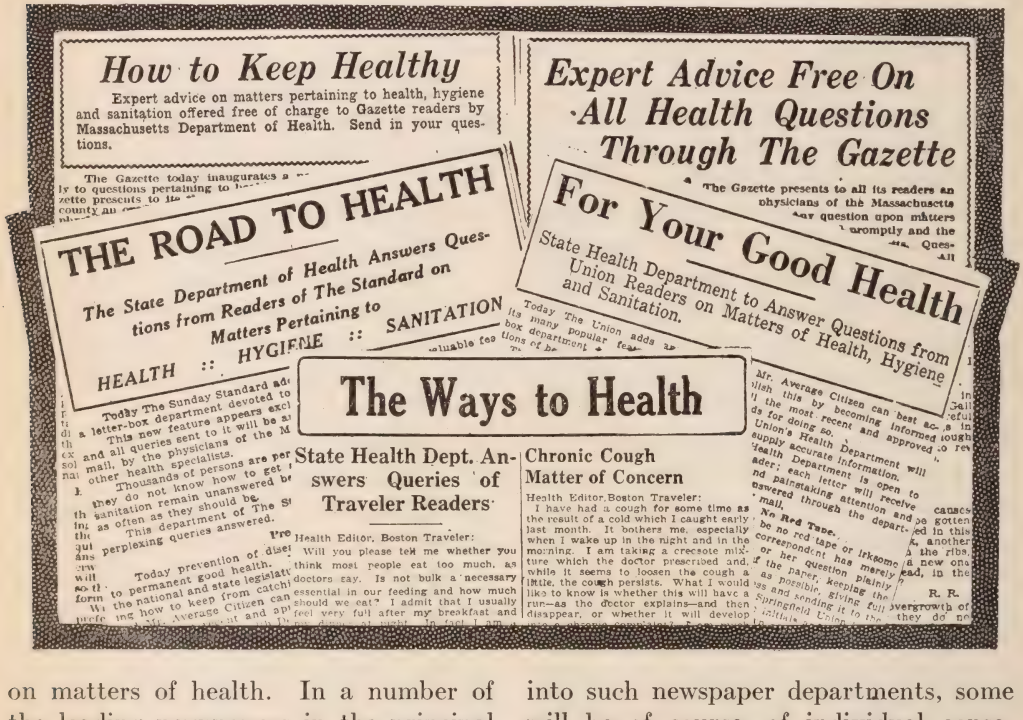
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MASSACHUSETTS HEALTH COMMITTEE'S QUESTIONS AND ANSWERS.

One of the very recent activities of the Massachusetts Health Committee has been the establishment through the newspapers of means of informing the people more of the authorities of the State Department of Health, a procedure that ensures both promptness and reliability. Of the many questions that will come



on matters of health. In a number of the leading newspapers in the principal cities popular health departments have been established. These vary in name, as may be seen from the illustration, but the purpose is the same in all, to furnish a means whereby the questions of the people may be answered and at the same time much general information of real educational value set forth.

The committee has provided a means of furnishing answers through one or into such newspaper departments, some will be of course, of individual consequence only, and these are answered by mail. On the other hand, there are other questions of wide interest and these are answered in the newspaper to which they were originally sent, and the other papers may use them if suitable to their readers.

This popularization of health education is one of the many ways in which the Massachusetts Health Committee is doing its part in the health work of the day.

VENEREAL DISEASE CONTROL IN THE MILITARY FORCES.

WILBUR A. SAWYER,
Major, M. C., U. S. A.

Read before the Sociological Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

Major Sawyer asks this question,—"The army is being sent home clean. Will your community make it easy or difficult for the men to remain so?" His short paper is an introduction to the longer one that follows it.

THE war against Germany is over, but the war against venereal disease is only started.

A little while ago we were fighting venereal diseases to keep them down in the army and to insure the winning of the war. Now the experience of the War Department in venereal disease control is primarily of interest as a demonstration of facts and methods of value to the civilian health officials. What are these facts and methods?

We have had some new light on the prevalence of syphilis and gonorrhea among young men of the civil population. The draft brought in men from all walks of life and the records at the camps indicate that they brought with them the greater part of the venereal disease that the army has had to contend with. This was shown by the high venereal disease rates when large numbers of drafted men were being brought into the army and the relatively low rates at other times. It was shown more accurately by special reports, additional to those regularly required, which have been rendered by camps Upton, Dix, Meade, Lee, and Pike for a period of thirty-four weeks from March 29, 1918, to November 15, 1918. Taking these five camps together the annual venereal disease rates per thousand men for the entire period was 347.88. The rate for cases contracted in civilian life and recorded as of the date when first discovered was 336.96, while the rate for cases contracted since enlistment was only 10.92. Less than one thirtieth of the 45,022 cases in these camps in the period under consideration was contracted after enlistment under army conditions. For all the troops in this country, including organizations that have been longer in the service than the newly drafted men in the camps mentioned above, five to one is probably as close an estimate as can be made of the ratio between cases contracted before enlistment and those contracted afterward. The total number of cases reported in the weekly telegraphic reports from September 7, 1917, to November 15, 1918, for troops in the United States, is 203,054, giving an annual rate per thousand of 133.12.

These figures will suffice to show that venereal disease is a large problem in the civilian population and that the army problem is principally the result of civilian conditions which existed before the war, and should be corrected.

The War Department has demonstrated the practical methods of venereal disease control in army camps and in surrounding civilian communities. These methods are usually equally applicable to civilian communities throughout the nation.

Perhaps the most important characteristic of the surgeon-general's program was that it was balanced. The new thing was the combination of many consistent methods for reducing venereal disease.

When it appeared necessary to control conditions in the soldiers' environment, the War Department put army officers and social workers into the zones around the camps to see that the laws against liquor and prostitution and health laws, or regulations, concerning venereal diseases were enforced. In this work valuable assistance was rendered by the United States Public Health Service and the American Red Cross through the establishment of venereal disease clinics and isolation hospitals in extra cantonment zones.

After the first selective draft, it was apparent that the greatest sources of venereal disease were the towns and cities from which the men came. The army then appealed to the states through their health boards to face the problem of venereal disease in order to protect the soldier of future drafts. A splendid beginning was made by many state boards of health. State laws and regulations and city ordinances were adopted in many places in order to give the health officials the power needed.

Then Congress took notice of the demonstration of the prevalence of venereal disease and its preventability, and passed the Chamberlain-Kahn bill, which, among other provisions, created a Division of Venereal Diseases in the Public Health Service, thus making it possible for the service to take the leadership in venereal disease control in the civil population on a permanent civilian public health basis. In this way it was assured that the work started under the stress of war for the army would be continued in time of peace, and that venereal disease control would become a definite and permanent responsibility of the public health officials.

In the surgeon-general's program considerable emphasis was placed on preventing exposure to infection. This was done by education of the soldier, and to a lesser degree the civilian, through lectures, pamphlets and moving pictures. Probably the most effective educational method was the showing of the moving picture film "Fit to Fight" which was specially prepared for soldier audiences but has more recently been adapted for civilian audiences. The film "The End of the Road" has been completed and is aimed primarily for audiences of young women. Venereal disease lectures to the troops were given in part by company commanders and in part by specially qualified officers of the Medical Department, who traveled from camp to camp.

At the same time that the soldier was being informed about venereal diseases and was receiving appeals to keep himself fit to fight, the law enforcement group was at work in the nearby communities where the soldier spent his leisure time. As a rule cities coöperated with the War Department in suppressing vice but in some instances it proved necessary to put them out of bounds. The officers in the extra cantonment zones saw to it that the federal and local laws were enforced, that red light districts and houses of prostitution were closed, that street walking was suppressed and prostitution in hotels and lodging houses was kept at a minimum. At the same time arrangements were made, as far as the local laws would permit, to have all prisoners who were arrested for sex offenses examined for venereal disease and quarantined and treated if found diseased.

Great care was exercised, however, not to confuse quarantine with imprisonment. Patients released from quarantine, if they had been convicted before a court, and prisoners not found infected were returned to the court for sentence, and often there was quarantine of persons not charged with the violation of any law, strictly as a health measure.

One of the important parts of the program has been the activities of the social workers of the Section on Women and Girls of the Law Enforcement Division of the Commission on Training Camp Activities. The field workers are women with social service training and experience. It is their duty to keep young girls from getting into prostitution and they also see that the women who are arrested or quarantined are kept properly occupied in the detention houses, hospitals, or prisons, and study the cases while under confinement. When the cases under suspended sentence are brought before the judge after their quarantine for venereal disease is over, the social service worker plans to be on hand to advise as to the disposal of the cases, should the judge desire assistance, as he usually does. Cases that are paroled or that have finished their sentences are kept under supervision and the worker has a responsibility to see that there are few who get back into the old life. The aim is not to have vast institutions and to put the maximum number of people into them, but rather so to organize the community that prostitution is unsafe and unprofitable and is less demanded and that in the more hopeful cases women who have been prostitutes can be quickly made self-supporting in legitimate industry. Institutions are essential for such a plan. Some prostitutes are of so low a mentality that they need permanent custodial care; others need varying periods of instruction and discipline in a prison farm or school; and many need a period in quarantine in order to be cured, or at least made non-infectious. Under an able and experienced woman social worker, one who has vision and is optimistic because of previous successes, the social service and follow-up work becomes simple and extremely valuable. Moreover such a worker takes out much of the seeming harshness of the law enforcement and quarantine work. She looks after the legitimate interests of the patient or prisoner and often wins her confidence and friendship.

Such work as has been outlined diminishes exposures by reducing temptation of the soldier and lessening opportunity for prostitution. Another factor in reducing exposures is keeping the soldiers occupied by wholesome recreation. Athletics, shows, music, dances, and soldiers' clubs all help.

In the army the soldier who has been exposed is required to report for the prophylactic treatment in order to prevent venereal disease from developing. In many of our camps both the prophylactic rates and the rates for venereal disease contracted since enlistment have been very low and this must be laid to the success of the measures which tend to reduce the exposure rate.

Twice each month every soldier is examined for venereal disease. The soldier who is infected is treated and he is kept in the camp until non-infectious, in order to protect the community.

We have now entered upon the period of demobilization. Under orders issued by the War Department no man will be discharged with venereal disease until he is no longer infectious. The control work in and around demobilization camps will be similar to that around the training camps. The army is being sent home clean. Will their communities make it easy or difficult for them to remain so? The war has awakened the country to the need for venereal disease control. It has pointed out some practical methods consistent with American standards. The Public Health Service and the states are taking up the work and the movement will surely grow until venereal diseases are kept down to a small fraction of their present prevalence.

VENEREAL DISEASE CONTROL IN CIVILIAN COMMUNITIES.

C. C. Pierce,
Assistant Surgeon-General, U. S. P. H. Service, Washington, D. C.

Read before the Sociological Section, American Public Health Association, at Chicago, Ill., December 9, 1918.

In the serious effort that is under way against venereal disease, in which the eyes of the people have been opened and their sympathy enlisted, there are many phases. This author presents a connected statement of the great broad work, its crying needs and the steps that have been taken to meet the need.

ON July 9th, the Army Appropriation Bill, Public 193, became a law. Chapter 15 of this bill created an Interdepartmental Social Hygiene Board consisting of the secretaries of war, navy and the treasury, or their representatives, and created also a Division of Venereal Diseases in the United States Public Health Service.

This chapter of the bill has been characterized by Surgeon-General Blue as the most important piece of public health legislation in recent years. It means that the long deadlock "on the western front" in the attempt to control venereal diseases, has at last been broken and we now have open fighting. It means that the United States government has recognized the venereal diseases as enemies of the public health, to be fought just as malaria, tuberculosis and hookworm have been fought. It means that the whole problem of venereal disease control is being approached from every possible angle. It means that the era of pessimistic beliefs and sporadic attempts at control has been replaced by an era of rational study, unbiased experiment and determined action.

Very many contributing factors are recognized; not one of them must be neglected if we are to attack this problem in the same sound, scientific spirit in which we have attacked other disease problems. Into it enter such other well-defined problems as those of general school education, playgrounds and recreation, economic readjustments, national customs, national psychology, morals and religion, etc.

It is obvious that the Public Health Service cannot and should not attempt to study all of these problems. It should, however, and does, welcome the coöperation of organizations qualified to make these studies, and their conclusions and recommendations are given careful and serious consideration. It must itself study the problem of the medical attack and the matters most closely related thereto, and endeavor to develop the best plan of action and secure its general adoption. As a basis for this, it starts from the excellent "Program of Attack," which has been carefully worked out by the office of the surgeon-general of the army, and which has just been described. It makes use also of suitable methods devised from time to time by the various state boards of health and by foreign countries, and is itself constantly at work through the various members of its staff.

In beginning its organization, the Division of Venereal Diseases of the Public Health Service is taking hold of the most obvious needs that so far have not been fully supplied. Matters of *law* enforcement on the other hand, so inti-

mately connected with any national or local campaign for the control of venereal diseases, are being so well handled by the Commissions on Training Camp Activities of the War and Navy Departments, that this phase of the work is, for the present, left entirely to those Commissions. The Public Health Service works in the closest coöperation with this organization.

But two great needs were especially evident when the Division of Venereal Diseases was created by Congress: 1. The need for an effective organization for venereal disease control as an integral part of every state board of health. 2. The need for educating the general public on the venereal disease problem as rapidly as could be done wisely and successfully.

We are meeting the first need by inviting each state board of health that had not already done so, to organize a bureau for the control of venereal disease in charge of a man of their own selection. The Public Service had appointed these men as acting assistant surgeons of the Service in order to give them further authority and backing and in order to conform to the regulations promulgated by the honorable secretary of the treasury on September 4, as required by the Act of Congress making available the funds for venereal disease control measures in the various states. Several of the states had themselves already organized such work months ago. In a few states, too, at the request of the health officer, a commissioned officer of the Public Health Service has been assigned for state control of venereal diseases.

In every case Service coöperation has been made only upon condition that the state board of health has adopted, or shall adopt, adequate regulations for the control of venereal diseases, and agrees to further this work to the best of its ability. By the provisions of the Congressional Act referred to, such states can then receive a government appropriation for venereal disease control, based on the size of their populations, ranging from $1,587 to Wyoming to $99,089 to New York State. This federal aid is given without other conditions for this fiscal year, but in order to receive a like amount during the next fiscal year, each state legislature must appropriate an equal sum. The following table shows the amount due each of the states:

Alabama	$23,247.15
Arizona	2,221.91
Arkansas	17,118.74
California	25,850.72
Colorado	8,687.66
Connecticut	12,120.57
Delaware	2,199.81
District of Columbia	3,599.66
Florida	8,183.11
Georgia	28,368.56
Idaho	3,540.13
Illinois	61,307.51
Indiana	29,366.20
Iowa	24,189.58
Kansas	18,385.42
Kentucky	24,897.77
Louisiana	18,009.65
Maine	8,071.68
Maryland	14,084.09
Massachusetts	36,602.51
Michigan	30,554.57
Minnesota	22,568.85
Mississippi	19,539.74
Missouri	35,807.91
Montana	4,088.76
Nebraska	12,962.75
Nevada	890.21
New Hampshire	4,681.54
New Jersey	27,586.22
New Mexico	3,558.70
New York	99,090.89
North Carolina	23,988.61
North Dakota	6,274.24
Ohio	51,832.16
Oklahoma	18,017.99
Oregon	7,314.87
Pennsylvania	83,341.55
Rhode Island	5,899.72
South Carolina	16,476.71
South Dakota	6,348.52
Tennessee	23,754.87

Texas	$42,366.49
Utah	4,059.39
Vermont	3,870.26
Virginia	22,415.58
Washington	12,416.68
West Virginia	13,277.04
Wisconsin	25,375.70
Wyoming	1,587.05

In two states medical officers of the army have been assigned to the Public Health Service for the venereal disease control work. Thirty-nine of the states and the Territory of Hawaii have adopted the main features of the model laws recommended by the surgeon-generals of the army, navy and Public Health Service for the control of venereal diseases. Thirty of these states have accepted the coöperation of the Public Health Service by placing an officer of that Service in charge of the work. In addition to five commissioned officers in charge of state control of venereal diseases, we now have twenty-six acting assistant surgeons, who are also appointed by the state boards of health for venereal disease control in those states. There are only eight states that have not yet (at the time of this meeting) complied with the regulations of the secretary of the treasury in regard to receiving their share of the allotment of the funds under the terms of the Chamberlain-Kahn Act. They are:

District of Columbia, for which a special Act of Congress is necessary, making venereal diseases reportable;

Michigan, in which state such a bill has been introduced;

Missouri, in which legislative enactment is necessary;

Pennsylvania, which has no law requiring the reporting of venereal diseases, but has sufficient funds with which to carry on such work as is desired;

Tennessee, in which the notification law is practically useless; and

New Mexico, Idaho and Utah, which states have not a proper law, but in which steps are being taken for the right kind of legislation

Altogether, approximately one hundred and twenty-five (125) clinics have been organized by the bureau in conjunction with state boards of health.

As the work has recently started, reports from these clinics are not yet tabulated and the exact number of patients treated in them to date is unknown. In addition to these, there are twenty-five (25) in extra-cantonment zones, under the charge of commissioned officers of the Public Health Service, which are designed primarily for the protection from venereal infections of soldiers and sailors from nearby military posts. These extra-cantonment clinics are under direct Service management. Approximately 30,000 persons have been treated in these clinics since January 1, 1918.

In this clinic work, the American Red Cross has heretofore generously coöperated financially, providing for equipment and supplies where these could not be otherwise obtained. Since funds have been made available to each state for venereal disease control work, such expenses must be partially borne by the state and by the community in order to develop local responsibility for venereal disease control work.

In the states which have passed adequate regulations, appointed a man and received the federal appropriation, the work for the control of venereal diseases is being organized along four chief lines:

1. Establishment of venereal disease clinics in towns sufficiently large enough to support them.

2. Education of the public on the nature of the venereal diseases and the means required for their control.

3. Law enforcement measures for the repression of prostitution.

4. Establishment of detention homes and other institutions for the proper

quarantine of cases dangerous to the public health and for the rehabilitation of persons of previously immoral life.

Clinics are established in the various sections of the state, particularly in the towns which reach a large outlying population, as well as in the larger cities. Each clinic is placed in charge of local doctors of suitable training and ability, with a staff that includes a female nurse, a female social worker and a male attendant, or their equivalent if possible.

Next to the skilful medical treatment of venereal diseases, we believe that the most important function of the clinic is the education of its community. It naturally becomes an educational center for the distribution of literature, and especially for sending out into the community patients who know what the modern treatment of venereal diseases means; what the dangers of these diseases are, and how they may be prevented. In addition to the educational work done by each clinic, the medical officer endeavors to acquaint the people of the state generally with the urgency of the venereal disease situation, and to secure their active interest in the work that the state is doing, and their endorsement and extension of it. To that end, he speaks before all manner of citizen organizations and secures as much proper newspaper publicity as in his judgment is needed.

Second only to education is the extremely important function of rehabilitation and replacement in society of those who for a time have been anti-social in their habits. While all of the staff should contribute to this, it is particularly the duty of the social service worker. In addition to following up all careless cases, she provides work for the patients who need employment where the moral surroundings will be of a more helpful sort, and she makes it as easy as possible for patients to come back into a normal life. It is hoped to provide generally for psychological examinations, so that patients who are feeble-minded, or otherwise mentally abnormal, may be placed in a suitable environment, whether that be attained by instruction of the family, or by securing the admission of the patient to an institution for restraint or supervision.

In some cases detention homes or detention farms must be provided for locally, in addition to institutions already supported by the state. In this, and other law enforcement work, the War Department Commission on Training Camp Activities furnishes special aid through its field representatives, when there are such in the same area as the clinic. If there are none, the medical officer in charge of state control of venereal diseases must secure proper enforcement of the laws against sexual offenses, and suitable detention quarters for infected male and female prisoners charged with such offenses. In any event, he is to provide for the treatment of these, and of all state and federal prisoners infected with venereal diseases. In a word, we want to see the varied problems of controlling the venereal diseases treated just as sensibly and fearlessly as the problems of controlling other communicable diseases.

The second great need—that of general education of the public—is being met in part through the work of the state boards of health and their clinics. In part, however, this matter demands a nation-wide campaign and this is being organized by the Division of Venereal Diseases of the Public Health Service. The objects of this educational campaign are to combat and correct ancient misunderstandings and misconceptions; to provide accurate information inoffensively presented; to arouse interest and active coöperation, and to make possible the teaching of sex hygiene.

It should be stated here that the teach-

ing of sex hygiene, as now understood, does not contemplate the delivery of a few formal lectures on the subject, disassociated from all other instruction, and to be listened to with bated breath and emotional discomfort. It means first the education of parents, so that they will know how to answer the questions of growing children and be able to inspire them with a reverent attitude towards sex. It includes also the study of biology in the schools, so that children will learn the essential facts regarding the development of life without having the subject made unduly prominent in their minds. In fact, they will learn what they need to know about sex without at all realizing that they are receiving sex instructions. Contrary to making the subject prominent, it will become merely one small part of the instruction of children in the care of their bodies and in a right attitude toward life.

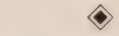
In the present emergency, the necessary information regarding particularly the venereal diseases and methods of control is being brought to the attention of intelligent and influential persons, especially those through whom it can reach a still greater audience. Physicians, nurses, dentists, druggists, ministers, school teachers, women's clubs, industrial employers, labor unions, the press, and the various large conventions, are some of the organizations and groups that are being approached. Literature is being distributed, lectures given, and exhibits and moving pictures are being circulated.

The general results of the government's campaign against venereal diseases during the past year have been very interesting, and in some respects contrary to what many persons expected. It used to be said that nothing could be done to stem the tide of venereal diseases, because the problem was bound up with unchangeable human nature. The results, however, as seen in the medical departments of the army and navy, have shown that a great deal can be done with good effect. It used to be said that the health authorities would do nothing. Thirty-nine state boards of health are now actively at work on this problem and the other states are arranging to do their part. It used to be said that no support could be secured for such work. We have found that, beginning with President Wilson, who devoted part of his war emergency fund to the early anti-venereal disease work around army camps, the federal, state and local governments have given generous financial and moral support to the campaign. The army bill of April, 1917, providing for the selective draft, provided also for the control of liquor and prostitution near military posts. By the bill of July, 1918, Congress has now appropriated over four million dollars for this work in civilian communities throughout the country. The Red Cross has devoted a large amount of money to aiding the clinics in extra-cantonment zones. Several states and a good many counties and cities have appropriated large amounts for venereal disease control.

It was said, up to the first of the present year, that the people were not yet ready to support such a campaign as this. Quite to the contrary, it has everywhere been found that the people are intensely interested in this problem; that they are astounded at the facts shown by the draft as to the prevalence of venereal diseases in the civilian communities; that they are indignant that things have been allowed to progress so far before a radical remedy was devised and applied; and that they are now determined that the venereal diseases shall be checked and their great prevalence reduced as far as possible. The support of the people in this work is absolutely assured, and for this we are indebted and shall always be

grateful for the epoch-making work of the surgeon-generals of the army, navy and Public Health Service and their medical officers.

The very newness of the attempt to control venereal diseases makes it impossible to estimate what the future developments may be. We must be guided by our experience in the other fields of preventive medicine, and by our growing experience in this, as well as by the paths pointed out to us by other branches of science. We see our way plainly for a short distance ahead, and we are proceeding accordingly; but before we have accomplished the tasks thus clearly outlined, we may expect that newer developments will both make those tasks easier and add others to them. We cannot believe that society will ever permit these diseases again to go unchecked. Nor shall we ourselves be pessimistic regarding the difficulties of the problem or the outcome of our endeavor. We look confidently into the future for a great victory in this field and we believe that we shall dictate the terms of peace in the venereal disease enemy's country.

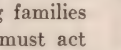


Lectures on Public Health Nursing.—The School of Public Health Nursing of Simmons College, Boston, and the District Nursing Association of Boston have arranged a series of ten lectures at the college now in course of presentation. The speakers include Professor C.-E. A. Winslow, Dr. R. C. Cabot, Miss Anna H. Strong, Miss Mary Beard, and half a dozen other public health nurse leaders who present the subject in its various phases of origin and development, child welfare, tuberculosis, school and rural nursing, and the National Organization for Public Health Nursing.

Professor Winslow divided the development of the public health movement into three phases: sanitation of the environment, the period of the bacteriologist, and the present one in which the laws of physiology are applied to the daily life of the individual. In this the people have to be educated in the principles of correct living and must develop a sanitary conscience. The work is essentially educational and really devolves upon the public health nurse. She is the greatest force in the public health movement for teaching families the principle of personal hygiene. She must act as the community mother and be able to aid the needy in every way. Dr. Winslow believes that nurses' schools should be independent of the hospital and the same high educational ideals which characterize the medical schools should be carried forward in them.

Dr. Richard C. Cabot spoke on the social causes of sickness. Among them he enumerated the following: unemployment, inadequate knowledge of food and diet, lack of sufficient food, disturbing influence of noise, cold or faulty nervous condition, worry, great mental fatigue, sorrow, fear, discouragement, improper care of the bowels, and lack of proper exercise and rest. Each of these factors creates a vicious circle, and increases the susceptibility of the individual to disease. The public health nurse, according to Dr. Cabot, having the affection and confidence of the afflicted people, can be one of the strongest forces in a community to combat these social causes of disease.

In the lecture in this series which was delivered by Miss Mary Beard, R. N., lantern slides were used in illustrating the technique of family nursing. The speaker outlined the administration of district nursing work and enumerated the qualifications which a family nurse should possess, including knowledge of the city, its history, political system, peoples and traditions, and all agencies that are available for relief. There are exceedingly important agents in educating the people in the principles of hygienic living, in child welfare work, and in the general assistance of the family.



Oklahoma Gets Three Sanatoria.—Owing to the efforts of the Oklahoma Tuberculosis Association, the Oklahoma Legislature recently appropriated enough funds to erect three tuberculosis sanatoria. Two of them will be for whites and one for the colored people. The legislative campaign, which the Oklahoma Tuberculosis Association conducted, was preceded by a state wide campaign of publicity and education, in order to impress the legislators that the sanatoria were really demanded by the people of the state. (*M. P. H.*)

THE CHILDREN'S YEAR CAMPAIGN.

ANNA E. RUDE, M. D.,
Federal Children's Bureau, Hygiene Division, Washington, D. C.

Read before Public Health Administration Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

Miss Rude presents a ringing appeal for standardization and co-operation in child saving. She demonstrates that this work is fundamental in any well-conceived public health planning. She has a story of accomplishments which is backed by facts and figures.

THE National Children's Year Campaign represents the combined wartime program of the Woman's Committee of the National Council of Defense and the Federal Children's Bureau. Although the scope of the campaign, as originally outlined, embraces the general well-being of all children, special emphasis is placed upon the reduction of infant mortality and the welfare of children of preschool age.

The primary aim of the Children's Year program is the reduction of infant mortality in the United States, by trying to save 100,000 lives (one third of the annual preventable deaths) during the second year of the war, but the real and great purpose of the work is educational, the teaching of parents—mothers especially—in such wise that not only will the future claim fewer victims of preventable disease, but also will find fewer avoidable abnormalities and fewer remediable defects amongst the children of the nation.

Although various measures for the protection of mothers and children have been instituted and carried on in this country for some years past, the movement has not met with the serious recognition which our participation in the great world struggle necessitates, if Americans are to become and continue a vigorous people. Up to the present time it has evidently been difficult for the American people to think in large numbers, for, during some years past, the fact that the nation has lost annually 300,000 lives under five years of age has failed to arouse that sense of active responsibility which is essential if this unwarrantable loss of life is to be appreciably reduced. Our apathy is even more tellingly obvious when statistics definitely show us that at least one half this 300,000 dies from preventable disease. It has taken the experience of such countries as France and England and our own entrance into the war, to bring us face to face with national protective health problems.

CHILDREN'S YEAR.

April 6, 1918, the beginning of the second year of the war, opened the Children's Year campaign. The necessity for such a campaign was recognized by the President in his letter to the secretary of labor in which he said:

"Next to the duty of doing everything possible for the soldiers at the front, there could be, it seems to me, no more patriotic duty than that of protecting the children, who constitute one third of our population.

"The success of the efforts made in England in behalf of the children is evidenced by the fact that the infant death-rate in England for the second year of the war was the lowest in her

history. Attention is now being given to education and labor conditions for children by the legislatures of both France and England, showing that the conviction among the Allies is that the protection of childhood is essential to winning the war.

"I am very glad that the same processes are being set afoot in this country, and I heartily approve the plan of the Children's Bureau and the Woman's Committee of the Council of National Defense for making the second year of the war one of united activity on behalf of children, and in that sense a children's year.

"I trust that the year will not only see the goal reached of saving one hundred thousand lives of infants and young children, but that the work may so successfully develop as to set up certain irreducible minimum standards for the health, education and work of the American child."

In addition to expressing his approval President Wilson set aside $150,000 of his special fund to be used by the Children's Bureau for the carrying out of the Children's Year program.

During the year three distinct drives have been inaugurated. The present, or "Back-to-School" drive is to be undertaken by a school welfare committee, appointed through the Women's Committees of the Council of Defense, for each of the 281,000 schoolhouses in the country.

The object of this drive is to return to school the children who have been attracted by wartime wages, or through patriotic appeals, to enter and remain in industry. Now with the cessation of war, an added problem presents itself, with the natural demobilization in industries and the return of men from service, children who have been employed during the war emergency will now be out of employment. It is particularly desirable that these children should return to school. Scholarship funds to keep needy children in school after the legal age for working is reached, have been established in a number of cities. The purpose of these scholarships in elementary and high schools is to keep children out of industry and give them at least two years additional training beyond the compulsory school age in order that they may become more useful citizens. Although this drive has just been launched, twenty-two different states are actively participating and many other states are formulating plans.

During the midsummer vacation the second part of the campaign, or "Recreation Drive," was undertaken in many localities with a view to increasing physical vigor among children. Such games were promoted as would increase physical adeptness and skill, train the eye, and develop the ability to respond instantly. The value of providing *successful* recreation under competent leadership or supervision was one of the principal aims of this undertaking and is largely responsible for extensive permanent recreational work.

As a means of popular education appeal, possible in even the most remote regions, the opening of the Children's Year campaign began with a nation-wide weighing and measuring test, undertaken through the vast machinery of the 17,000 committees of the Women's Committee of Council of National Defense which embodied most of the women's organizations of the country. Only through such extensive organization was it possible to attain the greatest results with a minimum of effort.

When it is realized that more than 6,500,000 weighing and measuring cards have been sent out for children under six years, it will be understood that the appeal has met with an unprecedented and over-

whelming response. Concretely, it can reasonably be assumed that at least 13,000,000 parents, not to estimate interested relatives and friends, have had their attention definitely drawn to the general physical condition of the child, since the relation of weight to height and age can be interpreted as a rough index of the child's nutrition. The recorded results of this weighing and measuring test give the largest mass of material ever gathered on the measurements of young children.

While many elements of inaccuracy may undoubtedly be found in these cards, tabulations are to be made on the basis of 100,000 cards from records of children who were given a complete physical examination by a physician. These figures will enable comparisons to be made for the preschool age children between weights and heights and the weight-height ratios of children in different sections of the country as well as those living in large and small urban and rural communities, and for children of selected foreign parentage. Other valuable data will probably evolve also from these records, since the leading anthropologists consider the fund of material manifold in possibilities.

If the realization of the importance of the child's nutrition were the only result of this weighing and measuring campaign, the effort would have been well worth while. Fortunately, much more has been accomplished in localities where, through good organization, the campaign received the support of physicians, and complete physical examinations were made, drawing attention to defects and remedies for the same.

In a mid-western city of about 70,000 population, largely foreign, the chairman of the Children's Year committee writes that the immediate results of coöperation in Children's Year have been three child welfare nurses; a milk inspector; publication of milk reports with bacterial count, sediment, etc.; an agreement between dairymen and farmers by which all milk sold in the town will be produced within a radius of ten miles and properly taken care of until it reaches the city; a summer hospital for babies; a milk depot; an organization of ten volunteer nurses to look up babies in the congested foreign district and to instruct the mothers how to care for their children; the cleaning up of streets and alleys of the congested districts, and four infant welfare stations, to be established in order to carry on the work permanently. Surely such results as these are quite beyond one's most sanguine hopes.

It is impossible to estimate the number of medical examinations made, but reports from various states have been most gratifying. One of the large but less populous states reports 41,000 weighed and measured with 32,000 complete physical examinations by physicians in only one half its counties, with many counties still at work. The Children's Year program as outlined in this same state provided for three weighing and measuring drives during the year, with the aim not only of reaching a larger number of children, but also as a demonstration of the value of periodic physical examination. As the result of the tabulations of remediable defects from this one campaign, 17 permanent health centers have been established, several counties have each a public health nurse, and lately the state has established a Division of Child Hygiene under the state board of health.

In another more populous state, most competently organized, every county in the state but four (102 in all) has had child welfare chairmen, with 360,000 children weighed and measured. There are 1,111 committees, indicating active

groups interested in various phases of child welfare work.

The states have varied widely in their child welfare campaign undertakings, but there is not a state in the Union which has not had some part in the Children's Year weighing and measuring program.

The outline of the work in these three states serves to illustrate the varying scope of the work undertaken in different localities, after the initial weighing and measuring had been completed. From several Southern cities where the milk supply seemed a paramount factor in the reduction of infant mortality, came reports of the establishment of milk depots where milk was supplied and sold at cost after a canvass of the town had been made to determine how many children were not getting milk.

One state which was very late in beginning its campaign has just sent in the following report: "2,423 children in a town were weighed and measured. The births of 1,172 of these had not been registered, so a blank birth certificate will be attached to each child's record card and sent to the parent in an effort to complete the birth records." Many localities have already made birth registration tests as part of the Children's Year campaign. The necessity for complete birth registration has been emphasized through the recent draftees who have been confronted with demands for proof of age and citizenship. Is there any reason why, with concentrated effort on the part of already organized committees, that the birth registration area should not be enlarged to comprise all the 48 states in this Union, instead of only 20 states as at present? One important point in this connection is the desirability of unifying efforts, while working for complete registration, communities should at the same time plan for such legislation as will require and enforce *early* registration of all births whether attended by doctors or midwives. When we realize that one third of all deaths under one year of age occur during the first week of life, the necessity for the early reporting of all births is evident. One of the most potent means of combating this enormous loss is through the care and education given by the public health nurse; *early* reporting of births makes possible early attention to both mother and child by the public health nurse.

While as a whole the general infant mortality rate of the country has been lowered, census figures for the registration area show that the number of deaths under one month have not been reduced in the past eight years. Since the majority of these deaths are definitely due to natal or antenatal causes it is necessary to look to facilities for better education of mothers concerning motherhood before there can be any hope of reducing the infant mortality rate. Particularly is this true of rural districts which harbor three fifths of the child population of the country. Organization along public health lines will have to be effected if appreciable inroads are to be made in either morbidity or mortality.

Publicity by means of posters, dodgers, stickers, slides, and motion picture films of Children's Year has been widespread throughout the country largely depending for success upon the activity and ingenuity of local chairmen.

An interesting innovation in propaganda has developed in the portable welfare center and dental clinic.

Michigan has a "Children's Year Special," an interurban car, which was sent out on a six weeks' trip with a trained nurse in charge. Local committees and local physicians coöperate in each town. The expense of the car is donated by the railroad company. In Cleveland a thoroughly equipped motorized health

center visited outlying districts with a doctor and a nurse and examined children. Connecticut has also utilized a mobile health center and covered its three most rural counties, where Children's Year work could not have been undertaken without assistance from the outside.

A number of committees have sent in a report, that as the result of their Children's Year work, the town had had its first dental clinic, and one state has appointed a state dental examiner who is to travel through rural localities where regular dentists are not accessible, spending from two weeks to a month in a town, reaching children through district schools.

The results of the weighing and measuring test in revealing the extent of malnourishment among children has initiated many nutritional clinics. Some towns have systematically undertaken the feeding of all undernourished children. In some counties all schools have become interested in hot lunches for school children. Domestic science teachers have volunteered to meet the rural teachers once a month, and plan menus. One county reports that home demonstration agents have planned diets for preschool age children, and are working in close coöperation with school nurses. Coöperation through the far-reaching and effective machinery of the Agricultural Department, with its agent in every county, seems to hold new possibilities not limited entirely to the teaching of food values, but to include the simple laws of child hygiene as well. Most pressing is the need of dietetic instruction for mothers. Frequently the cause of malnutrition does not lie in the quantity of food provided, but rather in its low nutritive value. An intelligent understanding of a well-balanced dietary containing elements necessary to supply the needs of growing children must replace dense ignorance of comparative food values on the part of mothers, if the malnutrition which is a distinct menace and handicap to the normal physical and mental development of the child is ever to be controlled or prevented.

Municipalities have in some instances undertaken the perpetuity of work begun under its Children's Year committee, either by appropriations or employing superintendents or an increase in school nurses under boards of education.

Since the beginning of the Children's Year campaign six states have established divisions or bureaus of child hygiene under state departments of health, making a total of eleven states now having such divisions. A number of other states are working definitely toward the establishment of bureaus of child hygiene as the logical result of the Children's Year campaign, which is generously accredited as having served to crystallize sentiment on the need of state child conservation departments.

During the year, the necessity for health education among teachers has become more evident and courses on the care of mothers and children for use in colleges and normal schools are being prepared under the Federal Board of Vocational Education. Undoubtedly the revelation of our recent draft rejections, showing that at least one half the defects were such as might have been eliminated in childhood, has added impetus to the interest in the physical condition of our children; and the supplementary evidence of malnutrition and defects, as brought out by the weighing and measuring test, has helped focus public opinion upon physical fitness.

By far the greatest and most lasting benefits to be derived from the present consciousness of the physical condition of the country's children will be the establishment of permanent follow-up work, to provide the means by which

physical handicaps may be given proper attention. The establishment of children's health centers and the maintaining of county public health nurses are fundamental in contemplating permanent work. A children's health center could well be utilized, not only as a place where any baby or child could be given a physical examination, defects noted, and recommendations made, but as a teaching center for mothers on the care of children. A prenatal clinic would be the natural outgrowth of such a center. Home demonstration agents could well combine in using the health center for community work.

The public health nurse is to be considered one of the most simple, direct, and easily demonstrated means of health protection and while the demand for public health nurses far exceeds the supply at the present time, it is hoped that the reaction will be such as will result in supplying the demand of public health workers. Several states have already met the situation through the National Organization for Public Health Nursing and have undertaken steps to prepare nurses for these special demands by providing one or two state supervisors of nursing under state boards of health or in some communities through state anti-tuberculosis associations.

Existing societies caring for mothers during pregnancy, for the prevention of infant mortality, for the study of child welfare and child hygiene, or for the control of child labor, as well as state and municipal health control are all dealing with the health of the child. Since all preventive measures utilized for the reduction of maternal mortality and the high rate of mortality during childhood are concerned with *education* of the people and with *prevention* as the only solution, it is a significant fact that all the work of these various organizations looking to the general welfare of the young of the race is contributory in part to every other line of preventive work looking to the general health of childhood—every line of preventive work automatically reacts by contact. Maximum results in child conservation can only be hoped for through effective organization and coöperation of all public health activities.

A preëminently important development growing out of Children's Year activities is the realization of the necessity for standardization of all welfare methods. The establishment of standards of prenatal, obstetrical and postnatal care, infant care, examination and supervision through the preschool period, with health teachings and standardized periodic physical examinations throughout school life, establishes a chain which would eventually guarantee efficient comprehensive health guidance. Standardized welfare methods are in themselves educational and productive of a consciousness of the need for better community health, especially as it affects child life.

There is no possible way in which to estimate the far-reaching results of the Children's Year campaign. That it has been a popular educational movement resulting in an awakened responsibility for the welfare of children, quite justifies all effort, but the great possibilities resulting from this campaign will be negligible unless through standardization and coöperation we undertake with continued and renewed energy the work of saving potential citizens.

MENTAL HYGIENE AND DEPARTMENTS OF HEALTH.

C. M. Hincks, M. D.,
Secretary, Canadian National Committee for Mental Hygiene, Toronto, Ont.

Read at the Annual Meeting of the American Public Health Association, at Chicago, Ill., December 11, 1918.

Everybody seems to realize the importance of mental hygiene, yet no one seems to know just how to begin. Dr. Hincks strikes the keynote of the situation. He says that the experimental stage is passed. It needs the backing of public opinion and the sound financial footing of support from public health funds.

IT might have been more fitting had the American Public Health Association invited a psychiatrist from the United States to perform this task, because the mental hygiene movement was born in this country, and has for its exponents leaders of international repute. In this connection I am constrained to pay tribute for what Canada owes in social psychiatry to such of your men as Llewellys Barker, Adolf Meyer, Thomas W. Salmon, William Healey, Walter Fernald, Clifford Beers, and others. They have been a source of inspiration to us, and recent developments in mental hygiene in Canada have been due in no small measure to them.

Mental hygiene, although one of the latest entrants into the domain of organized public health, is nevertheless gradually taking a place of prominence alongside such worthy projects as child welfare, the prevention and control of tuberculosis, and the combating of venereal diseases. This development is coming about, not because public health officers have been looking for added responsibilities—they are overburdened as it is—but rather because the subject has been to a considerable degree forced upon them from without. The modern criminologist finds, for example, that the problems connected with delinquency cannot be solved without the assistance of the medical man trained in psychiatry. The up-to-date social worker, wrestling with prostitution, illegitimacy, pauperism, and unemployment, is now aware of the fact that mental abnormality is often at the very root of these conditions, and therefore appeals for medical guidance. The best educationalists of the country discover that feeble-mindedness in primary schools is responsible for much educational inefficiency and the spread of moral contagion, and they therefore want a helping hand from the mental specialist. Several years ago it was thought in certain quarters that the criminologist, the social worker, and the educationalist might receive the help they required from psychologists, but experience has taught that because neuroses and psychoses often play a part in the problems presented, that the most efficient helpers are medical men trained in psychiatry, neurology, and psychology. Now, where could such assistance be secured? It was evident an appeal might be made to physicians attached to hospitals for the insane, and to specialists conducting private practice in neurology and psychiatry. There seemed, however, at least one other possible fruitful source. It was argued that the problems presented were none other than questions of public health, and so it seemed reasonable to request departments of public health for the services of state or municipally paid psychiatrists. Up to

the present requests of this nature have been made from time to time and certain departments have responded loyally.

Those of us interested in the mental hygiene movement are glad that the development outlined above is taking place. We realize that departments of public health are rapidly becoming well organized, and that mental hygiene will profit greatly by being incorporated as an integral part of their running machinery. The subject is too broad and too important to be entrusted solely to isolated enthusiasts, to organizations supported by voluntary contribution, to hospitals for the insane and feeble-minded, and to public school systems. I say this in spite of some knowledge and great appreciation for the work that has been done in the past by such individuals and organizations.

It has been hinted that the program of mental hygiene is wide in scope. Let us for a moment consider the field that it attempts to cover. Dr. Llewellys F. Barker has eloquently defined a campaign for mental hygiene as: "a continuous effort directed toward conserving and improving the minds of people: in other words, a systematic attempt to secure human brains so naturally endowed and so nurtured that people will think better, feel better, and act better, than they do now." It will thus be seen that the mental hygienist is interested in the prevention of mental and nervous disorders and in securing adequate care and treatment for individuals affected. As far as treatment and care of mental abnormals are concerned, it is necessary in each locality to determine the number of feeble-minded, epileptic, insane and psychopathic among the population, to enquire into their individual needs, and finally to provide facilities for scientific care and treatment. In connection with prevention the public must be informed concerning certain salient facts relating to mental disorders and taught through newspaper and magazine articles, leaflets, and public addresses, what is practical in the way of preventive measures. Prevention and treatment are intimately bound together, because when the feeble-minded, for example, are segregated in institutions and farm colonies, they are prevented from reproducing their kind.

Indeed, as far as feeble-mindedness is concerned, this precaution, together with a careful selection of immigrants are among the few ways of preventing an increase to our mentally deficient population.

Many phases of the above program of mental hygiene can be admirably carried into effect by a well-organized department of public health. Such an organization, if it be municipal in a city say of less than half a million, needs merely to employ a social psychiatrist or two, and a staff of social service nurses trained in psychiatric methods. With the coöperation of the chief medical officer of health the psychiatric staff can be made to dovetail in with the whole program of public health. This system will work well, both for those engaged in mental hygiene and for the rest of the staff employed in other departments. The general staff assists in discovering clinical material for the psychiatrists and the latter help solve some of the acute problems of the former where mental abnormality is a factor. It is probably unnecessary to go into detail concerning further advantages of such coöperation, because it is evident that from the standpoint of filing case records, from the standpoint of publicity, and the placing of mental hygiene in its proper relation to other realms of public health, from the standpoint of finance, and for many other such reasons, much good will ensue.

With regard to the whole question of

mental hygiene I feel that we should consider that the experimental stage has been passed. It has been proven time and time again all over the continent that whenever a mental hygiene campaign has been conducted by experts backed by public-spirited laymen that good has always resulted. The various mental clinics connected with schools, asylums, courts and jails, have, for example, more than justified their existence. Up to date, however, we, as a people—this refers to Canada at least—have been for the most part content to leave the whole matter in a more or less experimental stage. At least we have not put the work on a sound financial footing supported as it should be out of the public funds. The result has been a spasmodic effort here and there—a few brilliant successes, it is true—but the great majority of our people have reaped little benefit. As I see it salvation lies in a great measure with organized departments of health.

A number may not agree with my view and for apparently good reasons. Opponents, or rather the unconvinced, may argue that the real handicap of the mental hygiene movement lies in the fact that there does not exist in this country or in any other country, sufficient accommodation for the feeble-minded or insane in well-equipped and adequately staffed institutions. In other words, the problem of mental abnormality would be half solved, it is argued, if we possessed suitable hospital and training school accommodation for all cases. With this point in mind many feel that our energies should primarily be used to urge the erection of more institutions. The argument makes a great appeal to me, and for that very reason I especially urge departments of public health to take up psychiatric work, not because these departments might build institutions, for that is not their function, but because they can probably best collect large bodies of data showing the actual need of added accommodation. It has been my opinion that the failure of governments to provide needed institutions has been due in great measure to the fact that they did not know the true state of affairs with regard to mental abnormality, and the public was not fully aware of the real situation. No organization is better fitted to collect the facts and to present them to public and governments than a department of public health.

Before concluding this address I would like again to pay tribute to the American mental hygienists who have been a source of inspiration to us in Canada, and not only to mental hygienists but to leaders in the United States in all branches of medicine including public health. In fact, we in Canada just now are particularly appreciative of the stimulation we have received from the United States in science, including of course the science of war. With regard to the latter it is hard for me to keep from dilating on the subject, but I will refrain. And Canadians are touched when you show appreciation of our leaders in science, and our men of affairs. Medical men in Canada are proud of the fact that a Canadian was the president for the last year of the American Public Health Association. They are doubly proud because they consider him a most worthy representative of the Canadian medical profession, and I might say one who has incorporated mental hygiene in his splendid department of public health.

A MEDIAN ENDEMIC INDEX.

JOHN S. HITCHCOCK, M. D., and BERNARD W. CAREY, M. D.,
Massachusetts Department of Health, Boston, Mass.

The endemic index is a time saver for busy health officials. It permits the delegating of enormous routine work to a clerical staff. By the devices a serious condition is automatically brought to the attention of the staff, who notify the chief.

IN epidemiological work many devices have been proposed and used to record and illustrate the reported daily incidence of disease, either in a state as a whole or in the various communities, all having the common objective: to show clearly the relationship between the present incidence with that of the past.

That some device, simple in operation and interpretation, might be originated has been devoutly wished for by many public health workers. The fact that there are many schemes, graphs or devices, some simple and others complex in design, only proves that none is completely satisfactory.

The Department of Health of Massachusetts for the past few years has used, in conjunction with the usual "spot" maps, an "endemic" index card which was put into operation by Dr. W. H. Brown, then epidemiologist for the Department.

This endemic index signified the average number of reported cases for five years, exclusive of epidemics, for the various cities and towns of the State. It is noted that in computing this average epidemics were discarded and it seems as if this procedure is a vulnerable point which makes the endemic index at times of doubtful value.

The difficulty in the use of this endemic index lies in deciding at just what point an undue prevalence or outbreak becomes epidemic. It would be possible that an outbreak of measles, for example, occurring in a small town would be considered as an epidemic and discarded from the records while the same number of cases occurring in an institution of a large city would be reported to the local board and the total for the period not reach an outbreak proportion for that particular city

Again, it is possible to have a sufficient number of multiple cases occur in familie to raise the total number of cases to epidemic proportion, and to be thus discarded in our computation when actually the community incidence has not been considered as having approached the "outbreak" point because few families with many inmates were affected rather than many families with few inmates. This means only this: that to compute endemic indexes, all must agree on just what will constitute an epidemic in a given place at a given time viewed from all angles.

In this office, countless discussions have arisen over this point and few have concluded satisfactorily. It appeared that if a "median" index might be arrived at by taking a sufficient number of yearly reports, an approximation would be reached which would prove fairly accurate for past performances and give us a reasonable point to mark an excess of reported disease for any one month. This "median" is the record of an actual occurrence; it is arrived at by taking into account both the abnormally high and abnormally low incidence figures and in the process of arranging the data in

arithmetical sequence and picking the middle number the personal judgment of the compiler as to what does or does not constitute an epidemic cannot be exercised.

Therefore, to put this to a test, all cases of diphtheria, scarlet fever, typhoid, measles and pulmonary tuberculosis were arranged in monthly totals for a period of nine years (1910–1918) and then by arranging them in arithmetical sequence, selecting the median figure, a median was obtained for each month which is termed our median endemic index.

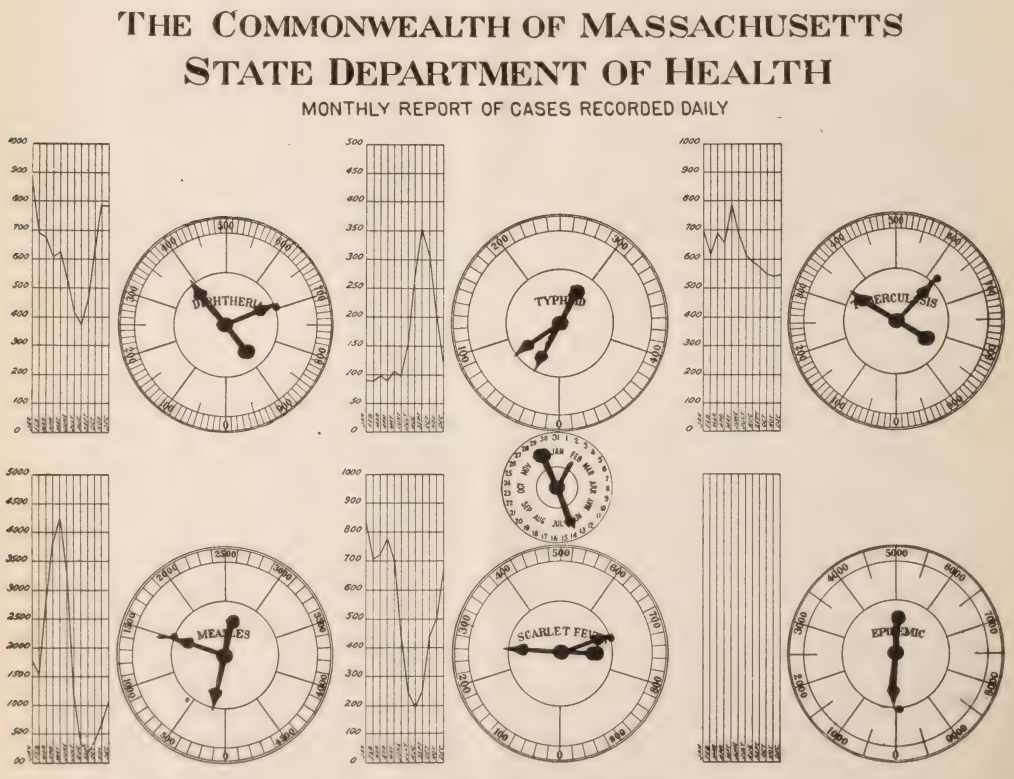
To make this procedure more evident the number of reported cases for January of each year of this series of nine years was as follows:

	Diphtheria	Scarlet Fever	Measles	Typhoid Fever	Pul. Tuberculosis
1910	912	943	1,772	132	754
1911	992	631	957	90	522
1912	519	583	1,468	80	486
1913	555	833	2,801	146	565
1914	846	1,584	880	194	759
1915	921	953	1,118	136	680
1916	840	948	1,866	81	667
1917	869	673	1,886	68	719
1918	950	609	2,950	53	697

By arranging these cases in arithmetical sequence, and choosing that number that appears in the middle as our index, we find the median indices for January for the various diseases to be:

Diphtheria	869
Scarlet Fever	833
Measles	1,772
Typhoid Fever	90
Pulmonary Tuberculosis	680

CHART I.



It is remarkable how closely Dr. Brown's endemic index, with an estimated figure used in place of the actual disease report, approximates this Median Index.

A chart was then prepared containing a graph of the monthly median for each disease, and beside it was placed a dial, marked off in suitable spacing for recording the daily increase. This is recorded by the two "clock" hands, the hour hand pointing to the median index for the current month, and the minute hand progressing as the daily reports accumulate.

The median index chart, used in conjunction with a "spot" map and daily index cards, seems to be an effective simple device whereby the daily accumulation of reported incidence may be watched, and which will show at a glance any sudden, or unusual increase.

Chart I shows that on the 14th day of February diphtheria accumulated a total of 394 reported cases, typhoid fever 27, pulmonary tuberculosis 334, measles 216 and scarlet fever 272.

Chart II shows the report on the 28th day or the end of the month with tuberculosis the only disease which exceeded its Median Index.

The dial marked "epidemic" is reserved to register any other unduly prevalent disease.

The design is furnished by Edward H. Williams of the Massachusetts Department of Health.

CHART II.



GROUP MEDICINE.

MICHAEL M. DAVIS, JR., PH. D.,
Director of the Boston Dispensary.

Read before the Sociological Section, American Public Health Association, at Chicago, Ill., December 9, 1918.

Dr. Davis emphasizes the wastefulness of present methods of family doctoring. He says that the existing system should be replaced by a co-ordinated one, which for the poor is exemplified in hospitals and dispensaries. He pleads for efficiency in the treatment of the man of moderate income as well as for the penniless.

THERE was a time when every shoe that men wore was made by a cobbler, but now few men make shoes. Many men make each a part of a shoe, or fit parts together into the finished product.

Shoemaking and doctoring are not seriously to be compared. Yet the development of specialization, in industry and in medicine, has a certain not uninteresting parallel. Specialization in industry has progressed to an extreme point. Along with it has gone another factor which has rendered a high degree of specialization both possible and efficient. This factor is *organization*. In medicine, within a generation, specialization has developed enormously. We may hardly claim to have fifty-seven varieties of specialists, but we have a number that is bewildering, when there is no force to bring them together as a working whole. The factor of organization in medicine is as yet relatively undeveloped. It is the purpose of this paper to suggest some indications of its present and its probable development.

In private practice among the well-to-do, a family will call during twelve months upon a pediatrician for the baby, an orthopedist for father's feet, a neurologist for mother's nerves, a laryngologist to take out Tommy's tonsils, a surgeon for the debutante's appendix, an oculist and a dentist for nearly every member of the family. Sometimes such a family has a family physician to whom they turn in all ordinary ailments, but more often they have not and go from one specialist to another as need appears to demand. The expense of this system of specialization without organization may not be a defect to those who can afford it. But the system is far from 100 per cent of medical efficiency. This is particularly apparent in those cases which are difficult to diagnose, or which present practical problems of treatment. For without a central medical point of view, to harmonize the opinions and plans of several specialists, the patient is likely to take the advice that is the least trouble to himself or that fits in best with his own preconceptions or prejudices. Such a system of unorganized specialist practice is not a solution of the problem of medical care, even among the well-to-do, and it is far too costly to extend to the community as a whole.

In most large cities, the same physicians who, as specialists, spend most of their mornings or afternoons in well-paid private practice among the rich, spend much of their afternoons or mornings in unpaid practice in hospitals or dispensaries for the poor. In the hospital or dispensary we have specialization brought to a high degree, and also have another factor introduced, namely organization. An elaborate equipment of instruments, microscopes, laboratories, X-ray facilities,

sterilizing and mechanical apparatus, is brought together in a single building instead of being scattered through many separate offices, and is placed under one general administrative control. The advance of medical and surgical technique has caused an enormous development of material equipment. Once upon a time the physician had to depend chiefly on his eye, ear and hand. Now, the investment required for a complete equipment for all branches of medical and surgical work is beyond the reach of any individual doctor; and complete equipment even for any one single branch is beyond the reach of most. The hospital or the dispensary provides and administers equipment for joint cooperative use.

Further than this, in the hospital or the dispensary, the relations between the different specialists are organized by common consent under a central authority, represented by the managing body of the institution itself. Right procedures of inter-relationship between the different departments, headed by the various specialists, determine the degree of effective coöperative work. These procedures are fixed by the central organization and supervised by it.

Thus there is not only organization of equipment but also organization of skill. This means *Group Medicine.* Group medicine represents a system for utilizing the maximum resources of modern medicine in all its various branches for diagnosis and treatment, so as to promote the most effective and economical utilization of technical equipment, and the most efficient coördination of professional skill.

Group medicine is new, because specialization in medicine is comparatively new. The hospital and dispensary were formerly places in which physicians, more or less specialized, worked each independent of one another, merely coming to the same building. The modern hospital in its most developed forms represents group medicine, but there are hospitals which today are merely medical boarding houses, providing an operating room, a laboratory and other equipment which a number of different physicians or surgeons may utilize with practically as much independence of one another, as if they worked in their own offices or in the patient's home. The development of medical organization *plus* specialization is coming to mean a new and much more efficient organization of hospitals and dispensaries. The hospital represents the practice of group medicine for cases requiring care in bed, while the dispensary (or the outpatient department of the hospital), represents group medicine for cases of the type that go to a doctor's office,—ambulatory cases, as they may be technically called. The great teaching hospitals and dispensaries of the country have led the way in perfecting equipment and organization so as to reach the highest efficiency, and it is in these institutions that group medicine can best be studied as a public or semi-public institution.

There are also institutions which have been founded particularly for the practice of group medicine. Most notable is the Mayo Clinic, of Rochester, Minnesota, an institution which stands on the principle that group medicine is more efficient than individualistic or specialized practice without organization. The Mayo Clinic receives patients, who, as a visitor was once told, may pay "anything from nothing up to $10,000," and gives the same treatment to all. Group medicine in Battle Creek, Michigan, in Fall River, Massachusetts, and a number of other places in the country, is represented today by organizations specially formed for the purpose. These organizations are on a business basis like well-conducted private academies.

A movement or an organization may be judged not only by its fruits but by its

imitators. The idea of group medicine is simply the application in the field of medical service, of ideas which have long ago demonstrated their value and necessity in other branches of human activity, notably the business world. Keen business men are apparently beginning to "catch on" to the possibilities of applying to medical practice so-called business principles of organization. To save part of a physician's time from the business end, to be devoted instead to professional work, would be a source of advantage. The practical outcome of any such plan would depend entirely on whether high professional standards are maintained in such an enterprise, or whether the business managers and others exploit the situation. The development of group medicine has its dangers like anything else, as the preceding account will suggest. We may well hope that in the main the growing organizations for medical practice will be founded on a basis of public service rather than for profit.

Certainly the time has come when, on the one hand, the coming together of physicians for organized practice should be permitted both by law and by public opinion. On the other hand, no such organization, whether called a hospital, a mutual medical organization, or any other group, should be permitted to carry on the diagnosis and treatment of disease except under some form of public supervision. The responsibility of the individual physician to his patient does not cover the whole need of the situation. The practice of medicine has gone beyond the power of any one man to master fully. Specialization carries with it the necessity of organization. Organization into groups carries with it the necessity for public supervision in some form.

The further development of group medicine is needed both by the medical profession and by the public. The general practitioner, even in the large city, who is struggling to make a living in middle-class practice, is cut off very often from the best facilities of modern medicine. His patients have not access to these facilities because they cannot pay the high fees required by consultants and specialists in private offices, or by private laboratories and X-ray experts. Only through organization, which will pool equipment and coördinate the various branches of special skill, can the facilities of modern medicine be opened up to all the patients who need them and all the doctors who know how to use them. Nothing less should be accepted by a civilized community as an ideal towards which to strive.

Consider the practice of the individual physician on the financial side merely. I can find no more clearly put statement than the terms of a circular issued by some business men who were proposing to organize a "group medical association," through which the business aspects of the practice of a number of physicians would be jointly handled, in a certain New England community.

To clearly understand the financial side of a doctor's practice, it is necessary to discuss it as a business, although it is very properly regarded as a profession. Hence we ask the momentary forbearance of the medical gentlemen, who are naturally and deservedly sensitive about the use of the word business in connection with their chosen work.

The physician has three things to sell: (1) His skill and knowledge for which he has sacrificed much time, study and money and to which, to be continuously proficient, he must constantly devote much more time as a student. (2) His time. (3) His physical endurance. The cost of conducting his practice (his office, his automobile, etc.) are here, as with the merchant, the so-called "overhead expense." His gross profit then, or income, is the amount represented by the entire number of calls he makes during the year, less his "costs" or "overhead."

No physician would be recognized by his fellows who refused to accept a sick call without cash in advance or who delayed his visit to inquire into the credit qualifications of his prospective patient.

A mercantile house has its "Credit Man." Statistics show that 60 per cent of the public, knowing their record will not pass his grilling investigation, never apply for credit, while more than one-half of the remaining 40 per cent who do apply, have their trade rejected on other than a cash basis.

But the doctor may use none of these safeguards. He must attend when called, not only the one-half which the commercial credit man rejects, but even the 60 per cent who would not have the temerity to apply elsewhere for credit.

Is it any wonder then, that practically all physicians collect less than 50 per cent, while in some cases the losses have been known to total 75 per cent to 80 per cent? Consider the application of this to the fee he must and does charge.

If business men, looking at the practice of medicine as a "business proposition," have seen the advantage of organization, may not the time come when medical men who see the practice of medicine as a high and noble profession will grasp the opportunity to join with one another in developing efficient centres of group medicine. They would undertake this not primarily for financial reasons, but for the advancement of the standard of their medical practice and the resulting benefit to the community. A group medicine plan is applicable not only to a large city but to the small communities also. In cities of small size specialists may visit on occasion, even if they cannot dwell there permanently. Their visits should be arranged for, by the local medical group, at regular intervals. Thus, a body of specialists would take part in a coöperative medical group often enough to meet the needs of the locality. Thus all physicians who were members of the group would get the benefit of coöperative work and the advantages of equipment which no one individual physician could provide for himself. The public of the locality would be similarly benefited.

Does group medicine mean breaking the personal relationships between the individual and the physician? It need not do so. As a matter of fact, the personal relationship of the average practitioner to his patients, particularly in cities, is decidedly discontinuous; while the personal relationship of the specialist to his patient is generally not only discontinuous but fragmentary. The patient is seen by sections. Group medicine can be so organized as to cause unification of personal interest in the patient, and to preserve personal relationships, as well as promote medical efficiency.

The development of group medicine in the immediate future may perhaps be stimulated if business men and social promoters recognize that it is a coming, useful and profitable form of organization to meet community needs for good medical care. But if the development of group medicine is to take place in the best way, it must move forward on the basis of public service rather than of individual interest. The general public must be educated to see the advantages of group medicine and to support those hospitals, dispensaries, health departments, and other organizations, which are endeavoring to further it. Both private agencies and public funds should advance this movement. The provision by state funds, or by a combination of state and local funds, of diagnostic equipment to be used by local physicians, with visiting specialists as above suggested, is part of a necessary program for the smaller cities and towns. A health insurance system might be another way in which funds would be available through local or state-wide insurance groups, for providing the equipment and the organizing skill, which could be used by groups of physicians in small as well as large communities.

The experience of military service will have rendered thousands of physicians familiar with methods of organization and accustomed them not only to the treatment of individual patients, but to coördination of work with other doctors.

The return of these physicians to private life may well be occasion for stimulating the organization of medicine and for helping the institutions in which group medicine is practiced. Members of the medical profession, men who are concerned with public health work, or with the administration of hospitals and dispensaries, should not permit the leadership in developing medical organization to pass out of their hands. Group medicine is a necessary progressive step in the practice of medicine for the public service. Development of high standards of group practice will be demanded by the public. They must be met by the profession. The public and the profession must coöperate in their advancement. Was there ever a time more ripe for forward movement than the present?

THE HEALTH OFFICER AND THE ENFORCEMENT OF THE LAW.*

Charles V. Craster, M. D., D. P. H.,
Newark, N. J.

"Health officers need the wisdom of a Solomon, the patience of a Job, and the shrewdness of a Sherlock Holmes," said one of them out of his own experience. Dr. Craster here supports this idea in part and presents some of the intricacies of health administration.

THE first health officer was probably I-Em-Hotep, who lived in Egypt 5,000 years ago. Distinguished as a physician, a priest, an alchemist, an engineer and minister to King Pharaoh, he wrote his laws upon health in the Temple of Ra at Memphis. This ancient code later became the foundation of the laws of health of the Greeks and the Israelites.

One is tempted to think that even in those far off days there must have been some difficulty in enforcing laws relating to health. Particularly drastic was the law mentioned by Dr. Grant Bey as having existed in the Hyksos period of Egypt which provided that if any physician adopted a method of treatment not authorized by the sacred books and during which the patient died then the life of the physician should be forfeited.

Let us hope there were even then enterprising and successful lawyers who interceded for the lives of adventurous practitioners of the healing art.

Although the state health laws and the ordinances of municipal sanitary codes have reflected to a fair degree the existing ideas of the public upon health matters as expressed in the legislation, a casual acquaintance will reveal their many defects.

So rapid have been the changes in our attitude upon public health questions of late years that health laws quickly become obsolete, the reason for their passing away being that their enforcement is often useless and may be even mischievous. In most states there is an abundance of such old time health legislation which forms a kind of legal wood pile from which the health officer has to select his legal weapon. The state health laws are badly in need of revision with a free application of the axe to remove useless and cumbersome legislative débris.

The selection of laws to be enforced to protect the public health must, therefore,

*The presidential address before the Health Officers' Association of New Jersey, January 25, 1919.

depend very much upon the judgment of the health officer, making this part of health administration a road surrounded with entanglements for the unwary. In no other branch of public health administration is there so much need for wisdom and tact. It may be said in a general way that the majority of health laws cannot be enforced entirely in accordance with the letter of the law. It is evident that there is an inner meaning in health laws as in other laws, "the spirit of the act" which must guide us in intelligently reading the whole instrument.

How much or in what way a law shall be enforced must depend upon the special conditions existing, but there is a minimum of enforcement below which any law ceases to be of value in effective health administration.

Sanitary Law Nuisances.

There is no more valuable heritage in public health than in the number of excellent sanitary laws originally framed to better the conditions in dwelling houses and public buildings.

The war originally waged against collections of dirt and waste material of every kind, however, very frequently outran reasonable safeguards. The public was suspicious of collections of even innocuous material, liquid or solid, because of the almost universal existence around dwellings of privy vaults and wells, the one to be suspected, the other protected.

The health official of the day having thus become the professional "smeller out" of undesirable odors resulted in much of our health legislation being directed against odors and fumes of all kinds, irrespective of any harmlessness they might be shown to possess.

Living conditions in the homes of city or country dwellers have, however, so changed of recent years that no health inspector would regard refuse or ashes as anything else but harmless, provided that these collections are protected from animal or other contamination. The enforcement of the law against sanitary nuisances is, therefore, guided by the possible menace to health existing. Where the condition is potentially harmful the public should be given the benefit of the doubt and the law enforced to abate the nuisance.

In this respect the uncemented privy vault, the unscreened toilet and the well or public water supply insufficiently protected from surface pollution must always remain a potential sanitary hazard to health. There will be at all times a grave responsibility upon the shoulders of health boards and health officers who neglect to enforce the law to abate such conditions wherever they are found to exist within their jurisdiction.

Healthy Dwellings.

There is no part of sanitary law which has done more to improve the general living conditions in communities than the restrictions governing the structural condition of dwelling houses. The proper repair of roofs, leaders and gutters, the general whole, and the weather proof state of walls, windows and doors as well as in the requirement of dry cellars, good floors and adequate water, toilet and plumbing facilities. There can be no argument against the full enforcement of the laws to bring about healthy conditions in houses.

Much fanciful and decorative repairs are not, however, needed in dwelling houses. It is a safe guiding plan to require only that which appears necessary to ensure individual health and protection against disease or exposure to inclemencies of weather conditions.

Antiquated Plumbing.

In towns where a municipal water supply and sewage system has been in existence for some time much antiquated plumbing equipment may be found by a house to house search for sanitary code violations. It should, however, be a cardinal rule to look upon such violations as being in a very distinct class by themselves and to test their value not so much by the antiquity of the installation as by the question "are they doing the work?" If the answer is in the affirmative then there may be little or no hazard to health existing and I believe no sanitary interference is indicated.

In one instance which came to my notice of a sanitary survey made of a certain city ward wherein so many violations of the plumbing code were found that the local plumbers were overwhelmed with the work required to be done. It finally became necessary to leave existing installations as they were provided there was no hazard to health in their continuing to function in the old lines. This does not mean, however, that flagrant plumbing defects should be overlooked. An old leaky and defective plumbing outfit in any house should be ripped out or the house condemned. All new work in houses, however, should be required to fulfill the strict letter of the law. No scamped work should be allowed and all plumbing materials put into even the cheapest houses should be of the best quality. Good plumbing takes high rank as a necessity in ensuring safeguards against disease in the homes.

It is for this reason that I believe the plumbing inspectors should remain under the jurisdiction of the board of health. In this regard I would go still further and express an increasing conviction that the building departments of cities should be under the authority of the health board. Certain it is that there is no department so concerned as the board of health in the proper construction of houses not alone for reasons of protection against accident or fire but from the ever existing hazard to health from ill built and badly laid out dwellings and public buildings.

The Control of Epidemics.

The paramount duty of boards of health to control disease epidemics remains today as formerly their most important function. Many others have been added including the newly recognized responsibility for the preservation of health. To control epidemics, the health officer must know where disease exists. To this end prompt reporting by physicians of epidemic diseases to the board of health is a prime necessity. No matter how efficient the methods of isolation and quarantine may be such measures depend upon prompt reports of contagious disease for any value they may possess in controlling epidemic diseases.

Reports of Deaths and Births.

Whether the health officer is the local registrar or not he should require all death certificates to be promptly sent in by physicians within the legal time limit. Sometimes a death from disease is the first signal of the presence of an epidemic in the community. Furthermore such deaths serve as good checks upon unreported cases. Deaths from epidemic diseases should bear a normal ratio to the reported cases. For example, for each death from typhoid fever there should be approximately ten reported active cases of the disease.

In a similar way the energies of the health officer should be directed to obtaining the reporting of all births within his jurisdiction. A good follow up on unreported births is the routine investigation of all deaths under twelve months of age. Unless physicians and midwives are

educated to report births promptly child hygiene work loses much of its usefulness in the community for it frequently happens that the unreported births are just those in which supervision and education are most needed.

Food Inspection.

Although we are not very certain of the part played by food in the spread of certain diseases the path of infection by the mouth being so direct will always remain suspect. It is for this reason that we all appreciate the dangers attendant upon the insanitary production of foodstuffs. This health hazard has now been universally recognized and has resulted in the passing of many fine laws to protect food in nearly every stage of its production. So comprehensive are these laws in New Jersey that their strict enforcement might disrupt the placidity of our friends, the city food producers. Old machinery and apparatus as well as old premises can usually be made sanitary, although I have my doubts of the worst of our cellar bakeries. I remember in one such bakery, dark and damp, the house drain of the premises was found leaking down upon the bags of flour in the storeroom. The moisture of the leaking sewage was regarded as the normal dampness of the cellar.

Food and drug laws governing impure or misbranded foods or drink should be enforced to the utmost. There is no more flagrant extortion of the public than in the sale of bad or adulterated foods. The citizen cannot protect himself in this respect and must rely upon the health officer to assure him of the wholesomeness of his purchase. The value of a rigid food inspection goes further than the immediate control of crime, inasmuch as the very future of our race is dependent upon a supply of food free from sophistication and denaturing processes.

In food condemnation, however, much good food may be salvaged. Every effort should be made by the health officer to allow commercial firms to sort good food from bad if such is a possible procedure. Recently a load of 70,000 cans of condensed milk was found to contain numbers of swelled cans. After sorting out the good cans and refusing the request of the manufacturer to have the swollen cans returned to the factory without denaturing each can the rest of the shipment was destroyed.

The high price of meat brought about an unusual sophistication. A certain complainant brought in some lamb chops. "Smell these," he said to the inspector. "What of it," said the latter. "What of it, why it's goat's meat," said the complainant, "and what is more the butcher who sold me these chops stole the goat from my back yard, slaughtered it and sold me my own goat as lamb chops."

With regard to bob veal there has been some change of opinion. The impression of its former harmfulness, more esthetic than real, has never been proved. The opinion of a veterinarian can usually decide as to the food value of bob veal carcasses. In few cases it is so immature as to be quite useless as food.

Milk Supervision.

Milk is so important a food product for children that its effective supervision in all localities is of supreme importance. The state standards of milk quality in New Jersey of 3 per cent butter fat and 11.5 per cent total solids is so moderate that it should be regarded as a minimum which a good dealer should endeavor always to excel by a wide margin.

A due respect for the law by the frequent taking of milk samples and the infliction of fines will do much to help the health officer to control his milk supply. Although few states have any legal score card for dairy farms nor any bacterial standard for milk grades, wherever possi-

ble such standards should be adopted by boards of health. There has been some recent tendency to decry the value of scoring dairies, but there can be no doubt that the general effect has been revolutionary. There may be too much stress laid upon barns and equipment and too little upon method, a situation which may be met by attention to altering the card to meet the local conditions. Inspection of score cards or bacterial counts by health boards will go a long way towards ensuring clean milk through insistence upon clean methods of handling cans and utensils and the rapid cooling of the milk after production. Their efforts along these lines will be productive of continuous good results especially if they can thereby ensure a better price for the milk from clean farmers.

The Control of Tuberculosis.

Finally there is our ever present problem of tuberculosis. How shall we enforce the law on tuberculosis where sufficient sanatorium accommodation is not provided by Boards of Freeholders? Of what avail is good reporting of tuberculosis, of efficient field work, unless proper provision is possible for the open cases exposing others in his own family to infection. During 1916 there were 3,844 deaths from tuberculosis in the state of New Jersey. Does the state come anywhere near providing the suggested minimum requirement of the National Society of one sanatorium bed for each annual death? The great difficulty with the control of tuberculosis is the question of dependence and the ever present poverty of the family. In fact the whole course of the disease is a graduation from one state of poverty to another till complete destitution results in the final stages.

The difficulty in the way of controlling tuberculosis will remain as it is so long as no adequate means are provided by the state to care for dependents of patients who are willing to be sent to sanatoria or hospitals. No matter what the chances of recovery may be the wrench of parting from home ties with the knowledge that family distress and suffering may be the results of the cessation of his labor is the highest form of human suffering. This added to an already depressed mentality frequently swings the scale against voluntary sanatorium treatment in the important early stages of the disease. Surely it is time that we as health officers realize the gravity of this problem and set about to bring along some system of state aid or sick benefits for tuberculous sufferers. This would assuredly lift the cloud of anxiety from thousands of unfortunate people and their dependents. I look forward to a more general recognition of our responsibility for the tuberculous. Give them some hope of aid for their families and you will have cheerful coöperation between the patient and the health boards to affect not only a cure but to protect exposed families and the community at large.

Health activities are partaking more than formerly a social attitude and much of our future health legislation must surely be along such lines. The state will in the future take an ever more prominent place in health legislation, for it is logically the center from which health activities should emanate.

We should, I think, work for the enactment of comprehensive state legislation upon the following:

1. A state health service similar to the U. S. Public Health Service.
2. The payment by the state of part of health officers' salaries.
3. A state poor relief or old age pension plan.
4. State insurance against tuberculosis disability.
5. State control of tuberculosis sanatoria with the establishment of state preventoria for children.
6. A milk ordinance for the state.
7. A plumbing code for the state.
8. State control of animals slaughtered for food on farms.

MEDICAL ARGUMENT AGAINST NIGHT WORK ESPECIALLY FOR WOMEN EMPLOYEES.

EMERY R. HAYHURST, M. D.,
Ohio State University.

Presented before the Committee on Labor, Ohio House of Representation, March 27, 1919.

I AM not in favor of night work for anybody. It is unnatural for most forms of life to work at night and attempt to sleep in the day. The tonic effects of exercise in daylight are lost. The diurnal temperature which varies in the human being, in whom it is highest at 2.00 to 6.00 p. m. and lowest at 2.00 to 6.00 a. m., is directly interfered with.

A letter on my desk signed by Charles Iffland, International Secretary of the Bakery and Confectionery Workers (headquarters Chicago, Illinois), proclaims that even this trade is strongly against night work, and that for the last thirty-seven years they have endeavored to abolish this most deplorable and miserable system which they consider the greatest evil in their industry and not necessary for the public welfare.

Fatigue is the health menace concerned—daily or chronic fatigue which is the worst form. This condition, defined as failure to respond promptly and efficiently to the normal amount of stimulus is due to a combination of several intrinsic factors: disturbances in normal sleep, rest, recreation, food, and the amount of strain due to work. Night work emphasizes them all and as follows:

(a) Sleep for the night worker is disturbed by the extra noise and bustle of the daytime, hot weather in the summer season, the presence of daylight, and the shift changes which are introduced weekly or bi-monthly in order to make the unfairness of the night work shift an equal burden to all employees.

(b) Rest is invariably broken by additional home duties, especially for women. If all in one household worked by night and slept by day, the disturbances would not be so great, but when noon meals have to be prepared for school children and others, the condition can only be appreciated by the picture of what would be the condition if a household was interrupted each night at 1.00 to 2.00 a. m. for meals and by people going and coming throughout the night.

(c) The recreation period for night workers is not timed with that of others; they lose many advantages of associations. Recreation must include time for association with fellow men, for contemplative reflection and planning or morale suffers, and many times morality as well. Interest, a chief natural block against fatigue, is absent when morale is not there.

(d) Food irregularities are prime factors in producing fatigue. Reversal of periods for light and heavy meals, invariable tendency on the part of night workers to lunch with the others during the day, and the effects of shift changes derange digestion.

(e) Strain is usually greater for night workers because night shifts are longer than day shifts, and because artificial illumination is usually at fault—either too poor or too glaring with spectral reflections. Practically all night workers experience difficulty, some call it agony, in keeping themselves keyed to the job between 2.00 and 5.00 a. m.—the period of least functional activity in the human body. This is the period of greater accident rate also.

The accident rate is invariably greater during night shifts. Investigators speak

of the hypnotic influence of moving machinery and the to-and-fro passage of workers under the influence of hour after hour of night work. The British Health of Munition Workers Committee found that the average first aid dressings in a munition factory on the night shift were 508 per thousand employees each month compared to 292 on the day shift per thousand per month.

Illness among night workers was reported from German experience twenty years ago as constantly increased over that for day workers. Perhaps poor ventilation, especially when night work immediately follows day work in a shop, is a common cause, perhaps also the occupying of the same bedrooms as used by others; but undoubtedly a loss of resistance to fatigue from the intrinsic causes above mentioned is the basic factor.

For many workers, especially women, fear on going to work late at night and on coming back early in the morning, especially between the home and the street car line, is a feature inimical to health.

I am against any argument that women should not work; I believe they should, for the good of their health. Whether the given woman should hire out for work and be constrained by a certain number of hours each day is a social problem rather than a medical one so far as she herself is concerned. With the exception of the months of child bearing and nursing, sex should not be looked upon as a disability. Where physical defects exist, which is very often the case, the question differs. About one woman or girl in seven has trouble with the menstrual molimen. Shift changes or any irregularity in daily activities at this period are to be regarded as detrimental. Menstruation, pregnancy, and nursing (lactation) are all phenomena of natural origin and coördinated with the natural arrangement of the order of day and night. Furthermore, married women have less opportunity to nurse their babies and the child's health suffers therefrom. Infractions are followed by disease and death. As it is, 23 per cent of all deaths occur before five years of age (U. S. Census, 1916, p. 11). Children too often bear the brunt of night work.

Pleasure, which is sought for recreation, many times leads the individual into late hours, irregular meals, and fatigue and strain otherwise, but this is no argument that such pleasure is recreation. It is, in fact, dissipation. The biggest problem today before the health economist is to point out the difference between this kind of recreation and dissipation.

Six afflictions are recognized as preventable,—"reducible" would be a better term. These are consumption, pneumonia, accidents, typhoid fever, poisonings, and suicide. With women engaged in gainful occupations, 75 per cent of their deaths are due to these six causes and before they are 45 years of age; for men, 60 per cent of their deaths are so caused and before 45 years of age (Bulletin Ohio State Board of Health, August, 1913, compiled from Tenth U. S. Census, Mortality Statistics—140 chief occupations). In 36 leading occupations for women, tuberculosis was the first cause of death in 27, with heart disease in the lead for 5 more (same statistics).

For women who do night work, the home becomes the place of eating and sleeping, washing and ironing, with a minimum of true recreation, an increase in accumulated fatigue, and most of what constitutes real life is the shop or mill. Night work for women is not in line with conserving womanhood or childhood. It is a menace to state and national vitality.

Outside of great emergency or absolute industrial necessity, all night work should be abolished and more so for women than for men because of the reasons given.

WARNINGS.

Health Lecturers Who Are Apparently Only Book Agents.

For the benefit of Massachusetts communities and for any in other states likely to be visited in similar manner, the following facts are made public.

From the Attleboro Chamber of Commerce there was received the following letter:

Attleboro, Mass., April 3, 1919.

Secretary, American Public Health Association,

Dear Sir: After completing our dealings with a Mrs. Burke and a Mrs. Denman, who endeavored to make arrangements for speaking locally on the subject of "Health," we are pleased to advise you in detail in regard to this matter.

A week ago Mrs. Burke called on several manufacturers, whose recollection is that she represented herself to be affiliated with the "American Health Association," of Boston. Although arrangements had been made by her in two factories to speak to the employees during the noon hour on the subject "Health," suspicions were aroused regarding the purpose of the lecture and the matter was referred to us for investigation.

As investigation through the State Health Department and your office revealed to us the fact that Mrs. Burke was not accredited by either institution, we sent a letter of warning to all our manufacturers.

As a result Mrs. Burke, on her return to this city and accompanied by Mrs. Denman, was detained in the factory where she had planned to speak on Tuesday afternoon.

In the mean time we again communicated with you by telephone to verify the lack of credentials. Thereupon both women were referred to the Board of Health and after a careful questioning by the Chief of Police and the writer, their definite purpose was clearly revealed and they were given the opportunity to leave town.

Although Mrs. Burke acknowledged that she may have claimed to represent the "American Health Association," it developed that they represented the "Home Health Association," a publishing house.

The purpose of these women is to appear before groups of men and women to speak on "Health" for a short period of time, thereupon to secure the "enrollment" of these people which is equivalent to subscribing for the purchase of a health book. The price is very cleverly put as follows: "$2.00 upon enrollment and the balance at 50 cents a week for six months." As you will note, this is equivalent to $15. Both women claimed to have done a wonderful business in the shoe factories in Brockton.

We believe that it is well worth while for you to notify the health officers of all cities and towns in Massachusetts in regard to the activity of these women. Even though they may not use the name of your Association verbatim, the innocent manufacturer is misled through the similarity to your Association.

Yours very truly,

Attleboro Chamber of Commerce,

(Signed) Walter O. Lochner, *Secretary.*

Warning Against Uneducated Nurses.

Mrs. Anna H. Staebler of the Massachusetts Antituberculosis League has discovered that there are women presenting themselves for the situations of factory nurses, who are not properly prepared for the work. Under the new law in Massachusetts there must be provided in every factory employing one hundred or more hands, a "first-aid" assistant. Under the demand it has been found that unscrupulous women are applying for the situations and getting them, who have made no study along "first-aid" or nursing lines. Manufacturers should take notice that no woman should be employed in such a situation without a certificate from the Red Cross or from some regularly established institution or Instructive Nursing Association.

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THE ADVISORY COUNCIL *VERSUS* THE BOARD OF HEALTH.

From Cambridge, Mass., there comes the latest welcome news that by legislative enactment, the city board of health is to be discarded, and an advisory council to the health officer substituted.

The happiness and welfare of a people depend so much upon maintenance of public health that enlightened communities now recognize this to be one of the foremost duties of a government. The functions of the health department in modern practice have become so broadened and highly specialized that the services of a full-time health officer, specially trained in the science of preventive medicine, are required in the administration of an efficient health organization. Such an official should not be hampered in the exercise of his skill and judgment. It is with regret, therefore, that one reads of a proposed reorganization which does not contemplate a change from the old-fashioned board of health to the modern system providing for a commissioner of health with an advisory council.

The system under which one competent health officer is placed in control of a health department not only works out in practice to the best interests of the public health but it is also conducive to the economic, effectual and expeditious conduct of public business. By contrast, a controlling board of health is a cumbersome, slow moving, complex machine which, meeting at infrequent intervals, tends, by reason of its very nature, to impede rather than to promote the effectiveness of public health activities.

The accomplishments of a board of health of course depend in a large degree upon the character and energy of its individual members. Therefore, in fairness it should be said that all boards are not incompetent, and in many instances failure to secure results which should be obtained must be blamed on the system rather than on any individual member. Certainly there appears to be no reason why a number of part-time, usually unskilled, men should be appointed, with or without compensation, to perform administrative duties that can be accomplished more effectively by a well trained health officer who is free to act promptly and decisively.

From the political standpoint a controlling board might be given preference in that more places are furnished for those to whom political favors must be shown and who in turn may thus be in a position to bestow favors. However, this is anything but desirable from the public health standpoint.

If the board of health was originally designed to interfere as little as possible with personal liberty, it has answered the purpose very well, but it has outlived its usefulness. It could readily dominate its executive, the old-fashioned health officer, usually a busy practitioner, a health officer in name only, an untrained, unskilled, part-time official, who was not in a position to assume great public responsibilities or to insist that his views prevail.

The modern health officer, on the other hand, must be a health officer in fact as well as in name, a full-time official, skilled in the science of preventive medicine, and a man who thoroughly knows his business. It is, therefore, to the best interests of the public health that he be granted full and unhampered authority to act, untrammeled by political considerations, and be advised, rather than controlled, by a council composed of business and professional men of high standing in the community. Thus, without curtailment of his authority he will be aided by wise counsel from those who have the best interests of the community at heart.

Carrol Fox, M. D.

WOMEN'S NEW FIELDS OF WORK.

A field of activity for women that the war has emphasized is in the laboratory. The field itself is not new in this country, for since the time of the graduation of Mrs. Ellen H. Richards, she as a pioneer took her station in laboratory work. Her accomplishments remain a monument to her name. Following her from the same and other technical schools and from the scientific courses of academic institutions, women have from time to time found places for themselves in laboratory work. Progress has been slow, however, although progress there has evidently been, both in bacteriological and industrial laboratory work.

When war was declared, whatever the country that was implicated many new fields of work were opened to women. Some of these were laborious, as in the foundry or shop, others required the deft hand and quick eye in inspection, while in numbers the women found place in chemistry and in bacteriology to replace men called away to that closer service which the country's needs demanded.

From many of these outposts of industry the pioneer women will retire to find occupations more nearly fitted to their strength, and men will once more undertake the laborious trades, but from certain other lines the women will not recede. They have found work to which they are fitted. There is no question about the ability of women to undertake most important service in the bacteriological laboratory, while almost all the fields of public health service are now known to be within their sphere. There are excellent reasons for this.

Hundreds of health officers answered their country's call and undertook its service here or abroad. There will be many of these who will not return, for among the diversity of occupations which have come into their experience they may have found some other one that holds out attractions for the future. Whether in service with the A. E. F. or in camps distant from their homes, many will take up different work or do their work in other circles. Then again the eyes of the people have been opened to the meaning of public health. They appreciate its benefits and realize that it has community and economic interest, as well as individual and personal value. This realization is already evident in the most practical way possible, in the voting by legislatures of larger sums for health work, not in one state or commonwealth alone, but in half a dozen. Important plans are in the air and under realization, plans which call for an increased personnel of skilled health workers.

There will be, therefore, opportunity for women, and foresighted women who have prepared themselves during the past few years will find their vocation. It is not to be

expected, however, that situations will be open on every hand, for already in the shifting of occupation that is the result of the armistice, a large number of women have found such places. At the same time the field is there and is gradually widening, but its real extent will be dependent on the women themselves, how well they can qualify themselves and how well carry on the work.

Similar conditions are true in industry. The time is not far back when the entry of woman into the industrial laboratory was looked upon with surprise if not with disapproval. The war has, however, levelled many barriers and they are homing themselves there. It is to the fields of public health, however, that the JOURNAL wishes to call attention. There are state and commercial laboratories that must multiply, and there are other public health movements like that of child welfare in which they can find a fitting sphere. It is then one of the potential duties of woman in the future to help carry forward work of the highest character towards the improvement of the public health and the betterment of the conditions of life in this, our great country.

GET YOURSELF EXAMINED.

One of the most important by-products of the war has been the information that has been obtained about the physical condition of our young men. All kinds of wild-cat statistics have been current, but the final official figures afford something substantial for a statement. About 38 per cent of the men examined were rejected. More than one-third of the young men of the country, who ought to represent the most healthy of the age groups, cannot conform to military requirements. This revelation is so direct and so important that it suggests to everybody one piece of advice, "Get yourself examined."

He is the merchant headed straight for bankruptcy, who never stops to take account of stock; likewise he is unfortunately guided, who never takes account of stock of his bodily condition. The commercial bank that cares for your funds takes serious notice of your overdrafts and you may save yourself by instant deposits to cover any shortcomings. The bank of health gives you notice of your overdrafts, but where are you to find the deposits in vitality to cover them? You may avoid such overdrafts by a very simple procedure, "Get yourself examined." You will know then what your balance may be; you will be warned to slow up a little in the complex rush of life's activities.

Health administrators know the fundamental nature of taking stock of the human condition. Almost everywhere pre-natal care does its best to endow the child with good health, and the moment it is born there are other agencies to look after its well-being. Here there is a little space in most communities, for medical inspection. "Having your children examined," does not begin generally before school age. For this space, however, associations are at work to fill the need and to assure the child the proper attention which shall be continuous from the cradle to the graduating exercises of the school.

Then there comes the period when the young man or young woman is self-controlled, and here unfortunately the chain is broken. There are agencies towards life extension, but impetuous youth is prone to take his own way, and here, as the examinations have shown, there are serious shortcomings.

Within a few years the toll of the degenerative diseases has focussed attention on the middle-aged man. To him the advice, "Get yourself examined," is advice that is by no means unheeded. At this age man values his life. He has plans and prospects, matters in hand that he is desirous of caring for to completion, and the slogan that heads this article does not fall on deaf ears.

It is then the great group between the schoolhouse door and the climax of the business career that is today most difficult of approach. Filled with the energy and enthusiasm of youthfulness, ignorant of the laws of hygiene, unaware of the existence of the inexorable "bank of health," uninformed that they too may have good advice if they will only seek it, these men and women recklessly or, rather, unheedingly, squander

their reserves in vitality. Their energy and activity make them the more difficult to reach, for they feel perfectly competent to take care of themselves. That they are not, is one of the most striking lessons that the war has brought home to this people. The young men and young women, who must be the future strength of the nation, do not measure up to the standards that they should. This is not because they do not care; it is because they do not know. For this vastly important age group there is the need of bringing to their attention the advice, educational work and supervision that is theirs for the asking. And all of this rests on the fundamental principle, "Get yourself examined." You will then know what you are and where you stand.

A LITTLE MORE TIME.

Large bodies do not always get into motion quickly, but when they are under way, they are capable of a great deal of work. The A. P. H. A. has proved to be no exception to this rule; it has taken some time for it to get into action along the whole line. The awakening is now so complete, so many are expressing interest in the movement, and returns in the form of applications are coming in in increasing numbers, so that it has been deemed only fair to move forward a little the time limit of the "drive." The final date has now been fixed for May 15, which allows still several days for members to accomplish their "bit" in the work. The extra time will afford an opportunity for those who have just become interested to catch up with their fellows, even if the latter have had the start.

It is suggested to members that if the "prospective member" has mislaid his application blank, another one is to be found in this issue of the JOURNAL, under the Table of Contents on Page VII of the advertising section.

CHANGE IN DATE OF NEW ORLEANS MEETING.

The attention of our members is called to the change in date of our New Orleans meeting. Contrary to our original information, it develops that accommodations are available for us in New Orleans during the latter part of October. This date is more desirable because the weather is more agreeable, and because more of our members from the teaching profession would be able to attend.

Accordingly, by a vote of the executive committee, the date has been changed from October 6–9, and the meetings will be held instead on Monday to Thursday, October 27–30, inclusive.



V V V V V

The American Journal of Public Health is only too glad to do its "bit" in the patriotic work of interesting its readers in the Victory Loan.

V V V V V

ASSOCIATION NEWS

HELP WANTED.

In order to help relieve the shortage of sanitarians due to the war, free help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Public health nurses for rural districts in the South. One or two county positions and a few cotton mill community positions available. For county work nurses must possess initiative, public health training, and must be able to drive a car. Salary $100 and car furnished. Address R. A. D. No. 200, care of this JOURNAL.

In Virginia, Public health nurse for tuberculosis work, also laboratory technician, salary $100 per month for each of the above positions. Address R. W. G., No. 214, care of this JOURNAL.

Full-time Health Officer in North Dakota. Should have ability to analyze water supply as to bacteria and degree of hardness; to diagnose infectious and contagious diseases; to act as food and dairy inspector; and to have charge of all sanitary matters. City of 15,000 population. Address H. M. W., No. 217, care of this JOURNAL.

Graduate nurses with public health training, for county work, specializing in prenatal and infant hygiene. Address K. B. V., No. 220, care of this JOURNAL.

Full-time health officer for Canton, Ohio. A growing industrial city of 85,000. Salary $3,300. This is the beginning of general reorganization of health work. Excellent opportunity for creating efficient municipal health department. In applying state age, education, experience and other qualifications. Address, Board of Health, Canton, Ohio.

Public health nurse in New York State. Salary $100 per month. Address H. H. C., No. 227, care of this JOURNAL.

Competent bacteriologist to take charge and run the Lewisburg Laboratories, Inc., on a commission basis. Good building and good equipment, fine location. Good opportunity for the right man. state age and experience, give references, state whether married or single. Address Stuart & Watts, Lewisburg, W. Va.

Assistant bacteriologist, State Department of Health. Salary $1,200 to $1,800. Men only, between the ages of 21 to 35 years. Open to non-residents. Candidates should have a college education or its equivalent, and a thorough knowledge of the principles of bacteriology and infection and immunity and practical experience in the bacteriologic diagnosis of infectious diseases. Apply for application form before May 12 to State Civil Service Commission, Albany, N. Y.

Bacteriologist, State Department of Health. Salary $2,000 to $2,500. Men only, between the ages of 25 to 40 years. Open to non-residents. Applicants must have a thorough knowledge of the principles of bacteriology, immunity, and vaccine and serum therapy, and considerable experience in the diagnosis and study of the pathogenic bacteria or in the preparation of vaccines, serums and antitoxins. Apply for application form before May 12 to State Civil Service Commission, Albany, N. Y.

CAMPAIGN NEWS.

The Southern trip of the secretary, which the *News Letter* began, but which for lack of space was continued only to Richmond, included a very interesting rally at Pittsburgh on April 16. Here a baker's dozen of men, interested in public health, assembled at a luncheon on the invitation of Major W. H. Davis, who a year ago succeeded Lieutenant-Colonel Edwards as Health Commissioner of the city. Representatives were present from the Pittsburgh Health Department, University of Pittsburgh and Carnegie Institute of Technology. Dr. Oskar Klotz, Professor W. U. C. Baton and Dr. William Henry Mercur were appointed a committee to organize the local campaign. In Pittsburgh the especial effort is to present the advantages of membership to industrial physicians, who should swell the list of A. P. H. A. members in and about this important manufacturing center.

With only two or three days in Boston the secretary made a trip to Augusta, Me., on the occasion of the second annual meeting of the local boards of health with the State Department of Health. Here he addressed the meeting on "The Relation of the American Public Health Association to State Health Work." Between ninety and one hundred delegates were present and steps were taken towards the formation of a state health officers' association. Five new members, as noted in the lists elsewhere in this issue of the JOURNAL, were one of the immediate results, with an active interest established in the Association in Maine which will probably bring in other additions to the roll.

(*Continued on page 378.*)

LIST OF NEW MEMBERS

PROPOSED FOR ELECTION TO THE

A. P. H. A.

FROM APRIL 19 TO APRIL 26, 1919, AND THEIR SPONSORS—OUR A.P.H.A.triots

A.P.H.A.triots	—and—	The New Members Whom They Introduced
	(States arranged in alphabetical order)	
CARL A. GROTE, Huntsville, Ala.		ALLEN MARION WALDROP, Jasper, Ala. County Health Officer
B. L. ARMS, M. D., Jacksonville, Fla.		PAUL PULLEN SALTER, M. D., Montgomery, Ala. State Bacteriologist
		OSCAR SUTTLE JUSTICE, M. D., Central, Ala. County Health Officer
		S. A. MATTHEWS, M. D., Mobile, Ala. Prof. of Physiology, Univ. of Ala. Med. School
		BRON DEE BLACKWELDER, M. D., La Grange, Ga. Health Officer
		SEALE HARRIS, M. D., Birmingham, Ala.
		JOHN OSGOOD RUSH, M. D., L.L. D., Mobile, Ala.
		EDWIN WALDEMAR EDOHL, Montgomery, Ala. Bacteriologist
		FRED CARTER KEISLING, M. D., Jacksonville, Fla.
		MARVIN FLETCHER HAYGOOD, M. D., Atlanta, Ga. Director, Div. Rural Sanitation and Epidemiologist
		JNO. SCHREIBER, M. D., Thomasville, Ga. County Health Officer
J. J. McSHANE, M. D., Springfield, Ill.		CHRISTIAN HERMAN DIEHL, B. S., M. D., Effingham, Ill. District Health Officer
JOHN A. KAPPELMAN, M. D., Chicago, Ill.		REV. EDWARD HARDY, Smithshire, Ill. Methodist Pastor
		J. L. PAULEN, Curran, Ill. Supervisor, School Teacher
J. J. ENTZ, M. D., Hillsboro, Kansas		W. PARKER IRWIN, M. D., Florence, Kansas
B. A. LEDBETTER, M. D., New Orleans, La.		CHARLES F. GELBKE, M. D., Gretna, La.
L. D. BRISTOL, M. D., Augusta, Me.		LOUISE L. DOHERTY, B. S., Augusta, Me. Chemist
		E. D. MERRILL, M. D., Foxcroft, Me.
		FRANCES B. MOSHER, Bangor, Me. Director Modern Health Crusade
H. D. WORTH, M. D., Bangor, Me.		WILFRED A. HENNESSY, Bangor, Me. Sec'y, Chamber of Commerce
		JAMES Q. GULNAC, Bangor, Me. Member Public Health Council of Maine
SOL PINCUS, U. S. P. H. S., Odenton, Md.		H. FRANCIS S. TAIT, B. S., M. E., Odenton, Md. Sanitary Engineer, U. S. Public Health Service
P. CHALLIS BARTLETT, M. D., Newton Highlands, Mass.		LEWIS M. PALMER, M. D., Framingham, Mass.
FRANCIS P. DENNY, M. D., Brookline, Mass.		ERNEST B. DANE, Brookline, Mass. Bank President, Member Bd. of Health
CHARLES W. MILLIKIN, M. D., Barnstable, Mass.		DR. WM. H. ALLEN, Mansfield, Mass. Chairman of the Bd. of Health
JOHN RITCHIE, JR., Cambridge, Mass.		MARY GODDARD POTTER, M. D., New York City. Teacher of Physical Training
WILLARD L. WARD, M. D., Brookline, Mass.		ARTHUR G. CHILDS, Waltham, Mass. Milk Dealer
		CHARLES W. DELANO, M. D. V., Boston, Mass. Inspector of Animals
		CHARLES L. ALDEN, JR., Boston, Mass. Treas. of Alden Bros. Co.
		HENRY CARLTON SMITH, Boston, Mass. Harvard Medical School. Chemist for Brookline Bd. of Health
		MRS. ELBERT A. HARVEY, Brookline, Mass. Dietitian, Brookline Bd. of Health
J. PENTEADO BILL, M. D., Boston, Mass.		GEORGE EDWIN BILL, A. B., M. D., Harrisburg, Penn.
		SARAH J. WILLIAMS, R. N., Melrose, Mass. Graduate Nurse, Industrial Work
NELSON C. DAVIS, M. D., Boston, Mass.		JOSEPH F. PHELAN, Boston, Mass. Dairy Sanitarian
		CLIFTON WARD HARRINGTON, M. D., Everett, Mass.
		HENRY DAVIS, Boston, Mass. President, The Stetson Press, Inc.
ARTHUR W. HEDRICH, Boston, Mass.		E. C. HOOPER, M. D., C. M., Waterville, Me. Health Officer

PROF. C. M. HILLIARD, Boston, Mass.

CHARLES H. HOOD, Boston, Mass.

VICTOR SAFFORD, M. D., Boston, Mass.

GEORGE T. BUCKELL, A. M., Houghton, Mich.

WARREN FORSYTHE, M. D., Ann Arbor, Mich.

ROSIER D. DEDWYLDER, M. D., Indianola, Miss.

MAZYCK P. RAVENEL, M. D., Columbia, Mo.

EDWIN H. SCHORER, MAJOR, M. C., U. S. A., Kansas City, Mo.

LAWRASON BROWN, M. D., Saranac Lake, N. Y.

M. GORMAN PRINCE, Hobart, N. Y.

F. L. RECTOR, M. D., Brooklyn, N. Y.

HAROLD B. WOOD, M. D., Albany, N. Y.

DR. EUGENE LYMAN FISK, New York City

WATSON S. RANKIN, M. D., Raleigh, N. C.

HERBERT L. DAVIS, M. D., Cleveland, Ohio

J. VICTOR GREENBAUM, Cincinnati, Ohio

EMERY R. HAYHURST, M. D., Columbus, Ohio

EDWARD J. SCHWARTZ, M. D., Columbus, Ohio

SAMUEL W. TROST, Cincinnati, Ohio

ERNEST ZUEBLIN, M. D., Cincinnati, Ohio

RALPH E. IRWIN, Harrisburg, Penn.

C. C. CRAFT, M. D., Bishopville, S. C.

SAMUEL G. PAUL, M. D., Salt Lake City, Utah

R. A. MARTIN, M. D., Petersburg, Va.

P. S. SCHENCK, M. D., Norfolk, Va.

JOHN B. ANDERSON, M. D., Seattle, Wash.

RUTH WICKENDEN, S. B., Boston, Mass. Instructor in Bacteriology, Simmons College

BESSIE LAVINIA JOST, S. B., Jamaica Plain, Mass. Instructor in Bacteriology, Simmons College

MARY BOSWORTH STOCKING, B. S., M. S., Boston, Mass. Instructor at Simmons College

HARVEY P. HOOD, 2nd, Boston, Mass. Dairy Products

AUBREY JOHN COLLINS, M. D., Boston, Mass. Medical Inspector, Boston Health Dept.

PHILIP CASTLEMAN, B. S., M. S., M. D., Boston, Mass. Dept. Health Commissioner

JOHN SYLVESTER BROWNRIGG, M. D., Roxbury, Mass.

JAMES G. TURNER, M. D., Houghton, Mich. Health Officer

ADDISON D. ALDRICH, M. D., Houghton, Mich.

CLYDE REYNOLDS, B. Sc., M. D., Ann Arbor, Mich. Univ. of Mich., Health Service

JAMES BAILEY BLACK, M. D., Indianola, Miss. Public Health Work

GUY LINCOLN NOYES, M. D., Columbia, Mo. Dean Medical School, Univ. of Missouri

JOHN DUANE DICKSON, A. B., M. D., New York City

EDDY WHITBY, Saranac Lake, N. Y. Pres. of the Consolidated Bd. of Health

CAPT. E. N. PACKARD, JR., New Haven, Conn. Base Hospital, 16

MRS. WILBER D. HOOSE, Hobart, N. Y. Bacteriologist

ELI A. MILLER, M. D., Pittsburgh, Pa. Scientific Asst., U. S. Public Health Service

JOSEPHINE B. NEAL, A. B., M. D., New York City. Physician, in charge Meningitis Div., N. Y. Bd. of Health

CHARLES TILLEY SHARPE, B. A., M. D., C. M., New York City. Physician, Life Extension Bldg.

LAWRENCE JACKSON SMITH, M. D., Wilson, N. C. Health Officer

ARTHUR B. BIRGE, Cleveland, Ohio. Director of Personnel of the Aluminum Castings Co.

JULIEN E. BENJAMIN, B. S., M. D., Cincinnati, Ohio

PERCY K. HOLMES, B. S., A. M., M. D., Delaware, Ohio. Physician and Dir. Dept. Hyg. and Phys. Educ.

EARL MUSSLEMAN, M. D., Alliance, Ohio. Health Officer

MAURICE JOSEPH, Cincinnati, Ohio. Manufacturer

VERA VIOLA NORTON, M. D., Cincinnati, Ohio. Cincinnati Tuberculosis Sanatorium

J. WARREN FORTENBAUGH, Harrisburg, Penn. Sanitary Engr., State Dept. of Health

RICHARD A. BLACK, Florence, S. C. Health Officer

GEORGE W. BAILEY, B. A., Salt Lake City, Utah. Bacteriologist

HELMINA JEIDELL, A. B., M. D., Salt Lake City, Utah. In charge of Child Hygiene and Pre-Natal Work

J. L. WEILER, Salt Lake City, Utah. Health Inspector, Chief of Div. Sanitary Insp.

ALMA M. KARLSSON, R. N., Salt Lake City. Graduate Nurse, In charge of all City Nurses

J. R. BECKWITH, M. D., Petersburg, Va. General Practice of Medicine

W. F. DREWRY, M. D., Petersburg, Va. Supt. Central State Hospital

J. STANLEY HUBBARD, Petersburg, Va. Registrar of Vital Statistics

CLARENCE FLOYD HOLTEGEL, M. D., B. S., Norfolk, Va. U. S. N.

LILLIAN M. BROCKWELL, Norfolk, Va. Asst. Bacteriologist

J. E. HENRY, M. D., Seattle, Wash. Director, Div. of Communicable Diseases

H. H. McCARTHY, M. D., Spokane, Wash. Pres., Board of Health

F. R. HEDGES, M. D., Everett, Wash. Member of Bd. of Health

MRS. R. C. McCREDIE, Sunnyside, Wash. Member of Bd. of Health

J. R. BROWN, M. D., Tacoma, Wash. Member of Bd. of Health

E. F. BENSON, Olympia, Wash. Commissioner, Dept. of Agriculture

J. B. KELLY, Seattle, Wash.

MAYO TOLMAN, Charleston, W. Va.

GORDON BELL, M. D., Winnipeg, Manitoba

FRANK S. BOURNS, M. D., Seattle, Wash. Diagnostician

L. W. PAGE, M. D., Upshur Co., W. Va.

CHAS. H. LEE, M. A., Winnipeg, Canada. Prof. of Bacteriology, Agricultural College

Names of Proposed Members whose A.P.H.A.triots are not known

CHAIN BELT CO., Milwaukee, Wis. Attention F. H. Kan, Employment and Welfare Mgr.

BERTRAND EARLE ROBERTS, M. D., Boston, Mass. Asst. Surgeon, U. S. Public Health Service

EMIL C. ROBITSHEK, M. D., Minneapolis, Minn. Eitel Hospital, Surgery and Control and Prevention of Cancer

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SUPPLEMENTARY LIST.

APRIL 26–30, 1919.

DON W. BINGHAM, S. E., San Francisco, Cal.

M. M. McCORD, M. D., Rome, Ga.

JOHN A. KAPPELMAN, M. D., Chicago, Ill.

JOHN H. HAMILTON, M. D., Iowa City, Iowa

A. T. McCORMACK, M. D., Bowling Green, Ky.
J. N. McCORMACK, M. D., Bowling Green, Ky.

JOHN L. PORTER, M. D., New Orleans, La.

L. D. BRISTOL, M. D., Augusta, Maine.

ALFRED KATZ, Springfield, Mass.

J. PENTEADO BILL, M. D., Boston, Mass.

H. W. CLARK, Boston, Mass.

PROF. C. M. HILLIARD, Boston, Mass.

CHARLES H. HOOD, Boston, Mass.

H. T. G. NAUMANN, M. A., Port Huron, Mich.

EUGENE LYMAN FISK, M. D., New York City

GEORGE H. VAN BUREN, New York City

BARBARA B. DRUM, B. A., M. S., Durham, N. C.

CHARLES E. LOW, M. D., Wilmington, N. C.

WATSON S. RANKIN, M. D., Raleigh, N. C.

ENRIQUE E. ECKER, Ph. D., Cleveland, Ohio

GAIUS E. HARMON, M. D., Cleveland, Ohio

J. P. KRANZ, Nashville, Tenn.

CARL F. RAVER, M. D., Charleston, W. Va.

PROF. SELSKAR M. GUNN, Paris, France

SPONSOR NOT NAMED

GAYLE GRAHAM MOSELEY, M. D., San Francisco, Cal. Medical Referee, Aetna Life Ins. Co.

MARCUS MASHBURN, M. D., Valdosta, Ga. Health Officer

A. M. FROMM, M. D., Ramsey, Ill.

JOSEPH C. SHAFER, M. D., Noble, Ill.

VIVIAN SHUMWAY, B. A., Iowa City, Iowa. Bacteriologist

MARGARET LINCOLN TAYLOR, B. S., Iowa City, Iowa. Bacteriologist

CHARLES S. GRANT, M. D., Iowa City, Iowa. State Board of Health

SARAH R. KELMAN, M. D., A. B., Iowa City, Iowa. Bacteriologist and Pathologist

JOHN ALVIN PHELPS, M. D., Hickman, Ky. County Health Officer

RALPH EARL, B. S., New Orleans, La. Asst. Director, Water Purification Station

MARTIN CROWELL MADDEN, M. D., Old Town, Maine. City Health Officer

HAROLD T. MARTIN, Chicopee Falls, Mass. Mgr. Health & Safety Dept., Fisk Rubber Co.

DAVID LAWRENCE WILLIAMS, A. M., M. D., Boston, Mass.

SUSAN M. HARDING, R. N., Newton, Mass. Public Health Nurse

ARNOLD NOBLE ALLEN, M. D., Roslindale, Mass. Asst. Dir., State Antitoxin and Vaccine Laboratory

L. R. DANIELS, M. D., Watertown, Mass. Hood Rubber Co.

ARTHUR R. G. BOOTH, S. B., Boston, Mass. Asst. Chemist, State Dept. of Health

EDITH ELIZABETH RAYNOR, Boston, Mass. Physical Therapeutist and Health Instructor

FORREST B. MAKECHNIE, Everett, Mass. Dairy Products

A. L. CALLERY, M. D., Port Huron, Mich.

HAROLD A. LEY, New York City. President, Life Extension Institute

PHILIP LEIBOFF, B. S., New York City. Occupation Rating, Life Insurance

HENRY J. KLEIN, B. S., New York City. Statistician

AGNES REESE HARRIS, R. N., Durham, N. C. City Nurse

JOSEPH S. O'HARE, D. V. S., Wilmington, N. C. Meat and Food Inspector

WILBUR A. McPHAUL, M. D., Lumberton, N. C. Health Officer

KAKUTARO T. SASANO, B. A., Lakewood, Ohio. Serologist, Cleveland Health Dept.

HAROLD C. KNOPF, A. B., Cleveland, Ohio. City Chemist

MRS. S. T. BEASLEY, Secy., Memphis, Tenn. Shelby County Tuberculosis Society

HARRY N. MOSER, M. D., Terra Alta, W. Va. Health Officer

HARRY F. COFFMAN, M. D., Keyser, W. Va. Health Officer

ALEXANDER FLEISHER, A. B., A. M., Ph. D., New York City. Sect. Principale Service de Propogande, C. P. T. F.

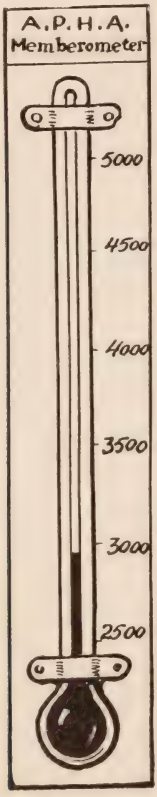
R. S. SCOBELL, Erie, Penn. Business Mgr., School Distric

Campaign News—(*Coninued*).

In the far South interest in the A. P. H. A. has been the occasion of a recent trip by Dr. B. L. Arms of the State Board of Health of Florida, to the medical society meetings of neighboring states. Dr. Arms attended the gathering of the State Medical Association of Alabama at Mobile, where at the regular afternoon session he presented the story of the A. P. H. A., exciting a great deal of interest. Dr. S. W. Welch, state health officer, took up the subject with enthusiasm, and speaking to the company said that he wanted every county health officer to join and to be present at the meeting in New Orleans in October. Dr. Henry G. Perry added to the appeal for new members. Almost immediately seven applications for membership were received from Alabama, and doubtless others will come as the leaven begins to work.

From Mobile, Dr. Arms went to Atlanta to attend the meeting of the Georgia State Medical Association, where through the courtesy of Dr. T. F. Abercrombie, State Health Officer, he had an opportunity to address the company. Two applications were made at once and others may follow.

ON APRIL 30, 1919,
THE MEMBEROMETER



Registers 2870 A. P. H. A. Members.
It has a good start now and
is steadily rising.

WORDS OF ENCOURAGEMENT.

Encouraging and appreciative words reach the JOURNAL constantly from members who are interested in increasing the A. P. H. A. membership. Here are a few from different sources:

John A. Kappelman, M. D., of the Illinois State Board, who wrote earlier, "I am going to make you real cross," by the sending of new members, is "making good." He has sent the applications of eight, a remarkable record.

Professor C. M. Hilliard of Simmons College: "I really believe that the impulse given by this coöperative work of members will reflect itself in new activities for the future. Please call on me for assistance if I can give it."

Robert A. Martin, M. D., Board of Health, Petersburg, Va.: "I am enclosing three applications for membership in the A. P. H. A. Send me some more blank forms and I will demonstrate the zeal of a new convert." Dr. Martin became a member in the early part of the "drive."

John B. Anderson, M. D., Commissioner of Health, Seattle, Wash., in sending five applications together, writes: "The members of the Board are given this subscription through the courtesy of the Department."

John J. Mullowney, M. D., of Philadelphia: "Indeed every doctor in the country ought to be a member."



NOTE FROM THE COMMITTEE ON STATISTICAL STUDY OF THE INFLUENZA EPIDEMIC.

According to official figures recently published for the mortality statistics of ninety-five large towns and cities in England and Wales and for the City of Paris by single weeks during 1918, some idea of the effect of the epidemic upon the general mortality rate may be obtained. For the British figures the death-rates of the corresponding weeks in 1917 are shown and for the French figures, the average death-rates for the period 1906–1910 are given by way of contrast. These figures were given to the JOURNAL by the Vital Statistics Section, Committee on Statistical Study of the Influenza Epidemic.

The committee is able to offer these data to readers of the JOURNAL in consequence of the kind coöperation of one of its members connected in an official capacity in a department of the Federal Government in Washington.

TABLE I.

ANNUAL DEATH-RATES PER 1,000 OF POPULATION BY WEEKS, 1917 AND 1918 IN NINETY-FIVE GREAT TOWNS OF ENGLAND AND WALES (COMBINED).

From Weekly Return of Births and Deaths Registered: London and Ninety-five Other Great Towns, London 1917 and 1918. Vols. LXXVIII and LXXIX.

Month	Week Ending	95 Great Towns		Month	Week Ending	95 Great Towns	
		1917	1918			1917	1918
January	5	18.9	18.1	July	6	11.2	19.0
	12	16.9	19.6		13	11.7	21.1
	19	16.2	18.7		20	11.2	18.0
	26	17.0	17.1		27	11.2	13.1
February	2	18.7	15.0	August	3	10.3	12.1
	9	21.2	15.7		10	10.4	10.4
	16	22.5	14.8		17	10.5	10.4
	23	21.0	16.7		24	10.6	10.8
					31	10.6	11.2
March	2	18.4	15.7				
	9	17.1	16.7	September	7	11.1	11.9
	16	18.5	16.6		14	10.6	11.3
	23	16.5	16.5		21	11.1	11.7
	30	17.7	16.1		28	10.8	11.4
April	6	17.3	16.5	October	5	11.1	12.6
	13	18.5	16.1		12	11.8	15.1
	20	18.4	15.4		19	12.0	20.7
	27	16.7	15.9		26	12.0	30.9
May	4	15.7	14.7	November	2	12.6	43.0
	11	15.3	15.0		9	11.8	43.8
	18	14.3	14.3		16	12.2	38.7
	25	14.1	13.7		23	12.3	36.3
					30	11.9	36.5
June	1	12.7	12.7				
	8	12.7	11.5	December	7	12.4	28.6
	15	12.8	11.4		14	13.6	20.2
	22	12.4	11.7		21	15.3	16.8
	29	11.7	13.2		28	17.9	14.8

TABLE II.

ANNUAL DEATH-RATE PER 1,000 POPULATION BY WEEKS 1918, IN PARIS WITH MEAN WEEKLY RATE FOR CORRESPONDING MONTHS OF 5 YEARS PRECEDING.

(From *Bulletin Hebdomadaire de Statistique Municipale*)Paris 1918.

Month	Week Ending	Average (1906–1910)	1918	Month	Week Ending	Average (1906–1910)	1918
January	5	17.1	21.0	July	6	12.8	13.0
	12	17.1	19.3		13	12.8	11.5
	19	17.1	17.8		20	12.8	10.4
	26	17.1	15.9		27	12.8	10.7
February	2	19.8	15.9	August	3	12.2	9.7
	9	19.8	14.5		10	12.2	10.7
	16	19.8	16.0		17	12.2	10.6
	23	19.8	16.0		24	12.2	12.1
					31	11.8	11.9
March	2	19.1	17.4				
	9	19.1	21.1	September	7	11.8	12.9
	16	19.1	18.0		14	11.8	15.7
	23	19.1	20.4		21	11.8	15.9
	30	18.0	18.9		28	12.9	17.8
April	6	18.0	17.3	October	5	12.9	26.0
	13	18.0	16.1		12	12.9	34.9
	20	18.0	15.1		19	12.9	46.1
	27	15.7	16.3		26	12.9	43.2
May	4	15.7	14.5	November	2	13.7	28.4
	11	15.7	12.7		9	13.7	21.0
	18	15.7	13.3		16	13.7	17.9
	25	15.7	12.1		23	13.7	19.4
					30	16.0	20.6
June	1	14.2	11.1				
	8	14.2	11.0	December	7	16.0	19.7
	15	14.2	11.5		14	16.0	15.9
	22	12.8	11.5				

E. W. KOPF, *Chairman of Committee.*

NEED FOR MODEL HEALTH LEGISLATION.

Successful administration of a health department depends upon a number of factors, some of which are an adequate appropriation, the skill and personality of the health officer, the attitude of the citizens, and proper legislation. Although some health departments seem to get along without proper laws and a few, but very few, are reasonably efficient in spite of those they have, adequate legislation is one of the essential foundations for the protection of the public health.

Analysis of a large number of ordinances and codes pertaining, or supposed to pertain, to public health, shows that there is great need of standard laws. In general there is little uniformity in requirements and penalties, though some of the more recently drafted sanitary codes appear to have been copied verbatim from one another regardless of local conditions. The laws of municipalities within a single state vary greatly, although all are supposed to be based on the authority of the same statute law.

Some of the more important faults which may be urged against many health codes are: (1) they are not in accordance with modern scientific sanitary knowledge; (2) they are poorly balanced, much attention being devoted to the so-called nuisances, plumbing, slaughter houses, and the like, and little to the control of communicable diseases; (3) they are unnecessarily long, using involved and com-

plicated language with much repetition; (4) they are often unconstitutional; (5) they are frequently carelessly drawn. An example of the last point is given in a recently issued state sanitary code which requires that "no public funeral shall be held without a permit from the local health officer." From the place of this phrase in the code it is probable that it means that no person dead of certain dangerous communicable diseases shall have a public funeral without a permit. Nowhere does it say this directly or indirectly, however, nor is there any clue as to how the permit is to be issued or to whom.

Health codes are generally products of evolution. They were first drawn up in the days when miasms and noisome odors were considered important. In spite of amendments some of them are just as antiquated as ever and their requirements ludicrous. Such phrases as, "No person shall raise the surface of any street or depress the same so as to permanently cause noisome odors or noxious gases to arise," or "Land which is wet, rotten, or spongy shall be deemed a nuisance," or "No peddler, vender, huckster, or junkman shall outcry, peddle or hawk his wares between the hours of 7 a. m. and 8 p. m. to the prejudice or peril of life and health of any human being" are ridiculous in modern health codes. They are there, however, and the above are exact quotations.

The solution of the problem of adequate legislation is to have a model health code. The object of such a code would be to present in correct legal phraseology and in accordance with the most advanced scientific knowledge the essential features of public health legislation. It would give the minimum requirements which any municipality should adopt. It would embrace such subjects as the control of communicable diseases, control of milk and other food supplies, waste disposal, abatement of real health nuisances and other matters that are related to public health. Of course, there already are excellent laws covering some of these items and in some ways a model code would be a correlation of these with some needed corrections and improvements. The communities which need legislation most do not always have access to these existing good laws; they do not know of their existence, and sometimes if they do, are not aware that they are good. A model law is not necessarily for the municipalities having advanced health work but for those which have not, and these far outnumber the former.

Certain branches of public health work have already been covered by model laws. For instance, there is the model vital statistics law and that for morbidity reports. There is also a model housing law. Standards have been adopted for other subjects, such as control of communicable diseases and milk, but these standards give the requirements, but do not offer any law. Plumbing codes have been standardized, but plumbing has so little influence on public health and requires so much technical knowledge that it is best omitted from a model law. The suggestion has been made, though, that the actual sanitary requirements relating to public health for plumbing be incorporated in a model law. They would be brief and might help to clarify the situation.

The first requirement of a model law is that it shall be accurate from both the sanitary and legal standpoints, and next that it shall be reasonable. Further, it should be concise, intelligible, easily enforceable, and practical. The main difficulty in the way of the scheme is due to the variation in powers and scope given in state health laws, but this difficulty is not insurmountable. If a model law, framed by experts, conflicts with state laws, it is the fault of the state laws and they should promptly be amended and brought up to date. Explanatory notes would be helpful in connection with the model law and would in many instances serve to point out ways in which to adapt the law to local conditions.

In order to assist in the work of standardizing health legislation the American Public Health Association has appointed a committee to draw up a model law for municipalities. This committee consists of the following members: Dr. W. C. Woodward, Health Commissioner of Boston, Mass., chairman; Dr. C. V. Chapin, Superintendent of Health, Providence, R. I.; Dr. H. B. Hemenway, Chief, Division of Public Health Instruction, Illinois Department of Health; Dr. W. S. Rankin, Secretary North Carolina Board of Health; Dr. C. E. McCombs, Bureau of Municipal Research, New York City; Surgeon Carroll Fox of the U. S. Public Health Service; Lieut. C. E. Turner, Sanitary Engineer of the U. S. Shipping Board, and Mr. James A. Tobey, late first lieutenant in the army sanitary corps, secretary. This committee was appointed in March and is now at work, the secretary devoting his full time to the matter. The committee will be glad to receive suggestions and comments from members of the Association and hopes to create discussion. The secretary's address is care of American Public Health Association, 169 Massachusetts Avenue, Boston, Mass.

James A. Tobey, S. B.,
Secretary, Committee on Model Legislation.

BOOKS AND REPORTS REVIEWED

Sewage Disposal. *Leonard P. Kinnicutt, C.-E. A. Winslow, and R. Winthrop Pratt. Second Edition. Rewritten. New York: John Wiley and Sons, Inc. Pp. 547. Price $4.00.*

As a rule books on sewage disposal are encyclopædic and ill adapted for use or ready reference, except by experts in sanitary engineering. Very often too, the principles underlying the subject are not presented clearly and concisely. The authors of this book have succeeded admirably in covering a vast field in a simple and clear way. They have also included a discussion of the principles of each process employed in sewage disposal. Greater interest is added to the book by various references and photographs of the methods of sewage disposal employed in Russia and Japan. Doubtless it will surprise many American sewage experts to learn that experiments on activated sludge have been going on in Moscow for some time.

The second edition differs from the first essentially in the following aspects: The subject of fine screening is fully discussed and brought up to date. There is an excellent and complete chapter on activated sludge, which includes the experience of this country and Europe. The chapter on sewage treatment by chemical precipitation is considerably enlarged to include the results obtained by the Miles acid process in Boston, New Haven, Baltimore and elsewhere. The chapter on the Imhoff tank is also enlarged, and the difficulties experienced in operation are noted and analyzed. There are also excellent chapters on the disposal of wastes from unsewered homes and institutions, on the principles of design and operation of sewage treatment works, on sludge disposal, and on the disinfection of sewage and sewage effluents.

It is interesting to note that the authors apparently favor sedimentation over fine screening for the removal of suspended solids from domestic sewage. Comparative results obtained from Imhoff tanks and Riensch Wurl screens are given, which show that the latter do not remove as much solid matter as the two-story tanks.

The good and bad points about the acid process for treating sewage are clearly stated. That the process is efficient is apparent. But whether it will be economical depends on the value of the grease which is recovered.

The book is one which can be recommended highly to all engineers, public health workers, social health workers, and others who desire to have a complete, yet a simple and clear statement of the principles and practice of sewage disposal.

Murray P. Horowitz, M. S.

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Trench Fever. *Report of Commission, Medical Research Committee, American Red Cross. Prepared for Publication by Richard P. Strong, Major, M. P. C. Oxford, Eng.: Oxford University Press, 1918. 446 Pages. VII Plates. VII Charts. 65 Tables.*

The discovery, study, and conquest of "trench fever" in the span of three years is a most striking and complete demonstration of the perfection of modern scientific investigation.

"During the latter part of the year 1915 and in 1916 the occurrence of a disease characterized by febrile relapses and subsequently named 'trench fever' became gradually recognized in the British armies in northern France." In October, 1917, Strong recommended the method of transmission of this disease as an appropriate subject for study to the medical research committee, and in the latter part of 1918 the results of the investigation were published, giving the salient facts as to the nature, occurrence, etiology, mode of transmission and prevention of trench fever, together with the details of the experiments and the clinical histories, charts and tables. Not only is the achievement in research monumental but the presentation and description is masterly.

As human subjects were essential to the studies, volunteers from the American Army were requested and eighty-two were employed in the experiments.

The following facts were established:

(1) Trench fever is a specific infectious disease, not related to typhoid or paratyphoid fever as hitherto suspected by some investigators.

(2) The causative agent is a filterable virus of rather extraordinary resistance.

(3) The virus is present particularly in the plasma of the blood in trench fever cases, and is occasionally found in the urine and sputum.

(4) "The disease is transmitted naturally by the louse *Pediculus humanus*. Linn.. var. *corporis*, and this is the important and common means of transmission." The louse may transmit the disease by the bite, or by the subject rubbing the excrement into the scarified skin.

(5) Prevention is fundamentally a problem of keeping men free from infestation with lice.

Curtis M. Hilliard.

Floating Matter of the Air*

By John Tyndall

"An inquiry into the decomposition of vapours by light, begun in 1868 and continued in 1869, in which it was necessary to employ optically pure air, led me to experiment on the floating matter of the atmosphere.

. . . "The state of medical opinion in England is correctly described in a recent number of the *British Medical Journal*, where, in answer to the question, 'In what way is contagium generated and communicated?' we have the reply that, notwithstanding an almost incalculable amount of patient labour, the actual results obtained, especially as regards the manner of generation of contagium, have been most disappointing. Observers are even yet at variance whether these minute particles, whose discovery we have just noticed, and other disease germs, are always produced from like bodies previously existing, or whether they do not, under certain favorable conditions, spring into existence *de novo*. . . .

. . . "On the 10th of September, 1875, this case was closed. The passage of a concentrated beam across it through its two side windows then showed the air within it to be laden with floating matter. On the 13th, it was again examined. Before the beam entered, and after it quitted the case, its track was vivid in the air, but within the case it vanished. Three days of quiet had sufficed to cause all the floating matter to be deposited on the interior surfaces, where it was retained by a coating of glycerine, with which these surfaces had been purposely varnished.

. . . "The front and back of this chamber were squares of 14 inches the side, the depth of the chamber being 8.5 inches. It contained, therefore, 1666 cubic inches of air, which had unimpeded access to the liquid in the tubes. No stoppers were employed. The air was unaffected by calcination, or even by filtering. Neither cotton-wool nor hermetic sealing was resorted to. Self-subsidence was the only means employed to rid the 'untortured' air of its floating matter. . . . For the sake of distinction I will call the tubes opening into the case the *protected* tubes, and those opening into the common air the *exposed* tubes.

"On the 17th of September all the protected tubes were bright and clear, while all the exposed tubes were distinctly turbid . . . while this process of putrefaction was going on outside, the tubes opening into the moteless air of the case remained perfectly clear and void of life.

. . . "Here a complementary experiment was made. It remained to be proved that those long dormant clear infusions had undergone no change which interfered with their ability to develop and maintain life. On the 13th of October, therefore, the small panel was removed from the back of one of the cases, and with three new pipettes specimens were taken from the three tubes within it. The closest search revealed no living thing. The air of the laboratory being permitted to diffuse freely into the case, on the day after the removal of the panel the test beam showed the case to be charged with floating matter.

"The access of this matter was the only condition necessary to the production of life; for on the 17th all the tubes were muddy and swarming with Bacteria. . . .

"It is in connection with the germ theory of contagious disease that the doctrine of spontaneous generation assumes its gravest aspect. My interest in the general question was first excited by the investigations of Pasteur, while the medical hearings of the doctrine were subsequently made clear to me, mainly, I ought to say, by the writings and conversations of the late Dr. William Budd, who was the first of our countrymen to grasp with true philosophic insight the doctrine of the 'vitality of contagia,' which is now every day gaining ground.

. . . "In Pasteur's researches the Bacterium remained a Bacterium, the Vibrio a Vibrio, the Peuicillium a Peuicilium, and the Torula a Torula. Sow any of these in a state of purity in an appropriate liquid; you get it, and it alone, in the subsequent crop. In like manner, sow smallpox in the human body, your crop is smallpox. Sow there scarlatina and your crop is scarlatina. Sow typhoid virus, your crop is tyhoid. Cholera, your crop is cholera. The disease bears as constant a relation to its contagium as the microscopic organisms just enumerated do to their germs, or indeed as a thistle does to its seed. No wonder then, with analogies so obvious and so striking, that the conviction is spreading and growing daily in strength, that reproductive parasitic life is at the root of epidemic disease, that living ferments finding lodging in the body increase there and multiply, directly ruining the tissue on which they subsist, or destroying life indirectly by the generation of poisonous compounds within the body. This conclusion, which comes to us with a presumption almost amounting to demonstration is clinched by the fact

*This is the fourth in the series of extracts from classic public health literature selected by Prof. C. M. Hilliard, associate professor of biology and public health, Simmons College, Boston.

that virulently infective diseases have been discovered with which living organisms are as closely and as indissolubly associated as the growth of Torula is with the fermentation of beer. . . .

"We have been scourged by invisible thongs, attacked from impenetrable ambuscades, and it is only today that the light of science is being let in upon the murderous dominion of our foes. Facts like these excite in one the thought that the rule and governance of this universe are different from what we in our youth supposed them to be; that the inscrutable Power, at once terrible and beneficent, in whom we live and move and have our being and our end, is to be propitiated by means different from those usually resorted to. The first requisite towards such propitiation is *knowledge;* the second is *action* shaped and illuminated by that knowledge. *C. M. H.*

◈

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horowitz and Mayo Tolman.

Correction.—Mr. David Greenberg calls attention to a misstatement in one of his notes in the March Journal, page 227. At present the text reads "approximately 85 per cent of the men entering the Army were already infected." The phrase should read, "85 per cent of the venereal disease of the Army is contracted before enlistment."

✱

Dr. W. T. Sedgwick, of Boston, has recently been elected into membership in the International Health Board of the Rockefeller Foundation, and also appointed directing sanitary engineer with the grade of assistant surgeon general in the Reserve of the United States Public Health Service. Dr. Sedgwick has gone from Boston for a four months' trip through the West and will be settled for a while in California, where he is to conduct a course in Sanitary Science and Public Health during the summer session of the University at Berkeley.

✱

Meetings of Associations.

American Public Health Association, New Orleans, La., October 27–30, 1919. Take notice of the change of date.

For some time past it has been the desire of the the Journal to present a schedule of the future meetings of state associations or conferences of local health officials with the state boards, and notes were accordingly addressed to all the states requesting information. The list is at present fragmentary, but is set forth for what value it may possess.

In April there was on the 22nd and 23rd the second annual meeting of local and state authorities, of Maine and similar conferences came earlier in the month for the states of Virginia, North Carolina and South Carolina. For the rest of the year the meetings that are regularly scheduled are the following:

May,	Indiana, May 6
	Texas, May 14 at Waco, to organize
	Kansas, in the second week
	Oregon, date not selected
June,	Rhode Island
July,	Nova Scotia, in the second week
August,	Florida, August 10
	Texas, date not set
September,	Quebec
	Iowa
October,	Illinois, 7–9
	California
	Minnesota

In 1920 Wisconsin will hold its regular meeting of the kind. South Dakota, Ohio and Tennessee are recorded as having no such conference; ten other states have no date fixed as yet, while about a dozen have not as yet made reply.

✱

Other Associations of National Character.

Other Associations of National Character have announced meetings on these dates:

American Water Works Association, Buffalo, N. Y., June 9–13.

American Medical Association, Atlantic City, N. J., June 9–13.

American Academy of Medicine, Atlantic City, N. J., June 9–10.

American Medical Editors' Association, Golden Jubilee, Atlantic City, N. J., June 9–10.

National Tuberculosis Association, Atlantic City, N. J., June 9–10.

✱

L. G. B. Medical Officer Appointed.—Sir George Newman, K. C. B., M. D., F. R. C. P., has been appointed principal medical officer of the

Local Government Board. This post is a new one, and the holder will have the status of secretary of the board, and will have the administrative responsibilities in respect to the work of his department.—*Medical Officer*, Feb. 22, 1919, 60. (*D. G.*)

✱

Railway Transportation of Garbage.—The city of Cincinnati employs a rather novel type of garbage collection system, utilizing railway transportation and a so-called "wagon box" for this purpose. The box in which the garbage is emptied from the street cans is about the length of the wagon and has a cover made up of four segments. It is not attached to the wagon body but only rests thereon and after being filled is lifted by a crane to a flat car and run down to the reduction plant at night. The full box is replaced by an empty one and the wagon drives on its rounds. The lids of the boxes, being built in four sections, minimize the escape of odors during the collection of the garbage.—F. J. Koch, *American City*, XX, March, 1919, 231. (*D. G.*)

✱

Treatment of Sewage from Single Houses and Small Communities.—This problem is always a difficult one to solve. Professor E. B. Phelps, formerly of the U. S. Public Health Service, describes a method of treatment which apparently solves the problem. The cost is estimated at $250 for a plant large enough to handle the sewage from 10 persons. Expert supervision is not necessary, and inspections need be very infrequent. The best plan consists in the use of a preliminary Imhoff tank, followed by treatment on a lath filter and subsequently by secondary Imhoff tank treatment. The effluent is sufficiently purified to be discharged without danger to the public health or of creating a nuisance. If the effluent is to be discharged into a water supply, terminal disinfection is recommended. The filter should be large enough in volume to furnish 8 cubic feet per capita. The Imhoff tank sludge need only be removed once, or at most twice, a year. Experiments with sand filters and regular trickling filters have also been tried with good success. The lath filter, however, gives much better results than the trickling filter. The article gives complete details for the construction of such a plant.—*Public Health Reports*, Feb. 14, 1919. (*M. P. H.*)

✱

Effects of Dust Inhalation.—The experiments reported by the author were made with the object of throwing light on the dangers arising from dust inhalations in mining and many other forms of industrial work, and on the conditions under which precautions against dust inhalations are specially necessary. The results of the investigation show:—

(1) Dusts that are harmful are dusts that accumulate in the lungs. Thus while coal dust and shale dust readily enter the lung they do not produce (under moderate exposure) permanent lesions, because they are quickly eliminated. Crystalline silica and flue dust (a dust of angular character) are not eliminated with such readiness from the lungs.

(2) Dusts that are eliminated are dusts that produce a marked initial reaction with much shedding of epithelium. Thus coal and shale are taken up by cells which are quickly shed and consequently do not set up processes which block lymphatics.

(3) Dusts that accumulate do not produce so marked an initial reaction, there being much less shedding of epithelium. Thus crystalline silica and flue dust are taken up by cells which tend to remain *in situ* and form plaques which appear early and persist. Dusts which form plaques are not readily eliminated.

(4) Dusts that produce an initial reaction tend to carry out with them the more inert. Thus if silica is inhaled in small quantities together with coal the lungs practically free themselves from the silica because the coal provokes a reaction in the lung with shedding of epithelium and expectoration of debris.—A. Mavrogordato, *Jour. of Hygiene*, XVII, Oct., 1918, 439. (*D. G.*)

✱

Outbreak of Food Poisoning.—An outbreak of food poisoning at Royal Sussex County Hospital in November, 1917, in which twenty-eight persons were affected showed several features of unusual interest. The outbreak was due to infection by a Gærtner group bacillus, allied to but not identical with *B. enteritidis*, and the vehicle by which the bacillus was conveyed was fish eaten after frying. Investigation showed that the frying was done hurriedly and the haste may have prevented the destruction of all the bacilli. In searching for the means whereby the fish became infected, all the available evidence strongly suggested a kitchen maid at the Hospital as being the source. She was the one person who handled the fish and in whose excreta was found a bacillus identical in all particulars with the bacillus causing the outbreak.—W. G. Savage and D. Forbes, *Jour. of Hygiene*, XVII, Oct., 1918, 460. (*D. G.*)

✱

Overcrowding and Meningococcus Carriers.—The connection of overcrowding and disease is strikingly brought out by the observations made by the author on the relation of density of population in sleeping quarters to the number of menigococcus carriers. A high menigococcus carrier-rate in a military unit denotes that dangerous overcrowding exists in this unit. A carrier-rate of 20 per cent (a

standard adopted for military necessity) is to be regarded as a signal for prompt and effective action to abolish overcrowding, improve ventilation, and to increase the distance between beds to at least 2½ feet. This spacing out of beds combined with improvements in the ventilation are highly efficient in reducing high carrier-rates.—J. A. Glover, *Jour. of Hygiene*, XVII, Oct., 1918, 367. (*D. G.*)

✻

Anti-Influenza Measures.—Sir Arthur Newsholme in an address before the Royal Institute of Public Health emphasized the importance of publicity in combating influenza. A very important suggestion made by him is that in the future a modified face mask should be worn which will protect the eyes, as well as the nose and mouth, against droplet infection. In any future epidemic it would be desirable to organize teams of doctors and nurses to go from one area to another.—*Medical Officer*, Feb. 15, 1919, 50. (*D. G.*)

✻

Vaccines and Whooping-Cough.—No active case of whooping-cough has developed in a single instance where the prophylactic administration of the vaccine had been given, some in one series now having passed two years. The vaccine used is a mixed one, and large doses are given—5,000,000,000 at one time—which is repeated on alternate days until three doses have been given. The author has also had success with the vaccine used therapeutically, for he finds that giving the vaccine reduces the duration of the disease, decreases the intensity of the illness, and prevents complications and sequelæ.—C. J. Bloom, *Arch. of Pediatrics*, Jan., 1919, 1. (*D. G.*)

✻

Does Tuberculosis Protect against Influenza.—In an article entitled "Influenza, Is It a Hazard to be Healthy?" the author gives the experience of Framingham, Mass., during the influenza epidemic. He found that whereas about 16 per cent of the entire population was infected, only 4 per cent of the tuberculous group in the community was infected. Furthermore there was reported approximately four times as much influenza and pneumonia among the Italians as for the rest of the community, made up in large part of Irish and Irish-American stock. The incidence of tuberculosis among the Italians in this community was 0.48 per cent in contrast to an incidence among Irish stock of 4.85 per cent. The author points out that these are only tentative considerations, since these findings are based on comparatively small numbers and incomplete returns, but that they are worthy of further study.—D. B. Armstrong, *Bost. Med. & Surg. Jour.*, Jan. 16, 1919, 65. (*D. G.*)

✻

Connecticut's Baby Special Automobile.—The state of Connecticut is to the fore in modern health appliances. Here is presented the picture of the automobile equipped for the weighing and measuring of infants and the distribution of literature. This work has been under the care and supervision of Miss Margaret Stack, director of the Bureau of Child Hygiene of the State Department of Health.



This is really opening a new door in public health administration, which may lead to benefits not yet possible of estimation. Already the principle of a moving hospital or dispensary for civil use has been established in the Philippines by the International Health Board with its steamer. Already the suggestion has been made that a similar plan would be of benefit to rural districts which are distant from real hospitals and real dispensaries. Already the idea has been put practically into action by peripatetic dentists in connection with school work, and already the city of Cleveland has had a motor vehicle for health work, but these are only the beginning. One can see at once the advantages of the motor dispensary. It can carry to regions aloof from skilled practitioners many of the advantages of city concentration, it can carry men who are competent to deal with the problems of the country and it can be an instrument of the greatest good.

✻

Change your "tickler" to "October 27–30, New Orleans."

Dr. Alice Hamilton Lectures on Industrial Diseases.—The Department of Preventive Medicine and Hygiene of the Harvard Medical School is enabled to give, once a year, a series of special lectures on some timely subject dealing with preventive medicine. These lectures are called the Cutter Lectures. This year, Dr. Alice Hamilton, who has been appointed Assistant Professor in Industrial Hygiene at the School, was asked to give the lectures. They were devoted to lead poisoning, poisoning from other metals, and poisonings from coal tar products and other organic compounds. (*M. P. H.*)

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Diet for the School Child.—A very effective booklet, artistically prepared, has been issued by the Child Health Organization (156 5th Ave., New York) for popular use. This booklet contains sections on good food habits; the nature of the child's food; planning the meals, and sample summer and winter diets for school children. (*D. G.*)

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Municipal Maternity Hospital.—The provision made for infant welfare work at Portsmouth, England (where the infant mortality rate has been markedly reduced) includes a lady medical officer (part time) and five health visitors who work from four maternity centers. Dr. Fraser, the health officer, advises that the most desirable extension of the work is the establishment of a maternity hospital. In connection with such hospital there should be a clinic where expectant mothers can receive advice. A babies' ward is suggested for the treatment of babies who owing to the death of their mothers, poverty and other causes, are in need of more skilled medical treatment and nursing than can be provided at home. A valuable adjunct to such an institution would be a home for the babies of widows, deserted, and unmarried mothers.—*Medical Officer*, Feb. 15, 1919, 51. (*D. G.*)

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Lake George Health District.—Another step toward coöperative health work was taken when the Lake George Health District was organized. The towns of Hague, Bolton, Caldwell, the village of Lake George, and parts of the towns of Queensbury, Fort Ann, Dresden, Putnam and Ticonderoga, have all united into one health district. There will be one board of health consisting of three members. The purpose of the plan is to improve the health service throughout the district surrounding Lake George, N. Y. Dr. Minna Mary Rohn has been appointed health officer of the district. Dr. Rohn is an experienced health worker, having had her training at the University of Michigan and at the Harvard-Technology School of Public Health. The position was filled as a result of a competitive examination. (*M. P. H.*)

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Public Health Centers.—In *Health News* for February, 1919, the New York State Health Department discusses the various phases of public health centers. James D. Burt outlines the program for one which should be housed in a three story building which, being large and comfortable, offers plenty of opportunity for privacy. The first floor should have a large assembly hall, with motion machine equipment, a mental health clinic, toilets and boiler room. The second floor should have the main offices, the venereal and skin disease clinic, the dental and eye clinic, the tuberculosis clinic, a waiting room for men, a waiting room for women, and a registration room. The third floor should have a laboratory, a child welfare clinic, two wards for transient cases, a room for supplies, two bath rooms, a nurse's room and a diet kitchen. The center need not be housed in a special, new building if funds for that purpose are not available. Usually some old building can be found which will serve the purpose. It is important to aid the patients in keeping their privacy as much as possible. (*M. P. H.*)

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Anthropometry and National Health.—The results of the survey made by medical boards of England in examining men to determine their fitness for military service are very striking. Men were divided into four groups or grades, I, II, III, IV, according to their physical fitness. On theoretical as well as practical grounds the Anthropological Survey Committee have come to the conclusion that if a population is healthy, a random thousand of its young men between the ages of 20 and 31 should yield 700 of Grade I—men fit to sustain the strain of field service; 200 of Grade II—men fit for the less strenuous forms of military service; 75 of Grade III—men unfit for any form of active physical employment, and 25 of Grade IV—men who are totally unfit from a medical or physical point of view. At the present time many industrial towns send up samples of a thousand men who, when graded, give results somewhat as follows: Grade I, 190; Grade II, 270; Grade III, 410; Grade IV, 130. Such findings indicate that the wear and tear of industrial conditions and the conditions of modern life exhaust the health and strength of the body. These findings point out the fact that in the future if we are to reduce this degradation we must look to the fitness rate, or sickness rate and growth rate of children as well as to the birth-rate and death-rate, as indices of the health of the nation.—A. Keith, *Jour. of State Med.*, Feb., 1919, 33. (*D. G.*)

STATE HEALTH NOTES—LEGISLATION

The following items will serve to indicate the activity in such work:

Illinois.—House Bill 42 authorizes municipal officers to make an appropriation in excess of the annual budget to meet the expense of epidemics, and to borrow money for this purpose.

House Bill 57 provides for the licensure of women as dental hygienists after a one year course in a recognized dental school, such persons being authorized to clean teeth under the direction of a dentist.

House Bill 67 requires physical examination for the detection of venereal disease as a prerequisite to marriage license.

House Bill 102 provides for the medical inspection of school children at the cost of school authorities; requires examination of sanitary condition of school and surroundings. Prohibits tuberculous teachers, pupils or employees in or about any school, except open-air or open-window schools under the direction of the State Department of Public Health.

House Bill 147 amends the County Tuberculosis Sanitarium law to permit counties to unite to create district sanitaria.

House Bill 151 regulates the practice of nursing and prohibits any person except a full registered nurse to engage in public health nursing.

House Bill 155 provides a program for the betterment of living and health conditions for negroes.

House Bill 353 provides for the maintenance of laboratories for the purpose of research as to the cause, cure and prevention of any disease or deficiency whose victims are the charges of the state.

Senate Bill 7 provides for the physical training of school children and the employment of physical instructors for each school or group of schools.

Senate Bill 82 provides for a maternity fund to be expended by the county for the medical care of mother and child for a period of one year after child birth. Similar to the Mothers' Pension Act.

Senate Bill 165 provides for a state housing code.

Senate Bill 353 permits counties and cities to segregate and treat persons suffering from venereal diseases and to provide hospital care for same. All persons charged with crime may be sent to institutions by the court, for examination or treatment.

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Indiana.—The legislature before it adjourned in March created four new divisions in the State Board of Health: tuberculosis, with an appropriation of $10,000 a year; infant and child hygiene, $10,000; rural hygiene, $25,000; and division of venereal diseases, $29,366.20, a sum equal to that appropriated to Indiana by the United States. The legislature granted to the Laboratory of Hygiene $2,000 in addition to the usual annual appropriation, and also appropriated $5,000 to publish the Indiana Mother's Baby Book.

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Iowa.—The Act looking to the prevention of blindness from ophthalmia neonatorum, which passed the Senate, was lost in the House by two votes. The bill received an amendment with reference to the consent of parents which apparently led to its defeat.

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Maine.—Through the action of the recent legislature the State Department of Health will have available in 1920 $87,000 a year for the work of the department, compared with $34,000 during the last few years, and $20,000 during the year 1916. This increase in appropriation is a good index of the possibilities for the extension of the work of the state department in Maine. The new legislation also includes more centralized authority for the state department, in controling the work of the local boards of health, and permits of the extension of the district health officer plan. It provides also for the union of towns for the employment of a full-time health officer and for all individual towns, or coöperative groups of towns, financial assistance from the state up to $800 a year is available for the employment of full-time trained health officers. A bill introduced by the state superintendent of schools with reference to the medical inspection of schools was indefinitely postponed. Another bill, introduced by the department of health, calling for more power to examine persons having certain communicable diseases, was also indefinitely postponed.

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Michigan.—Till now the state of Michigan has been without adequate public health statutes. There is a bill now before the General Assembly, which at the present time seems to have a fair chance of passage, by which the State Board of Health will be given control of the public health of the state and with it a bill which provides for county health officers. There is also a venereal disease bill and in the event of its passage Michigan will be able to share in the funds appropriated under the Chamberlain-Kahn bill, the state appropriation asked for being $150,000.

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Missouri.—A bill is now before the General Assembly, which to date seems to have a fair chance of passage, and by which, if passed, the State Board of Health will be given control of the public health of the state. There is also before the

legislature a venereal disease bill, by which in the event of its passage this state will be able to share in the funds appropriated by the Chamberlain-Kahn bill, and meet the requirements of the Inter-Departmental Board.

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New Hampshire.—In the legislature a bill has recently been defeated which sought to establish compulsory medical inspection in schools which is now optional. Under existing conditions school authorities may if they wish have this inspection of school children. The defeated bill was introduced by the Board of Education. There is pending in the legislature a bill to allow the state to have county public health nurses, a bill to prohibit prostitution and the spread of venereal disease, together with the usual appropriation bills.

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New Jersey.—The state budget authorized this month increases the appropriation for child hygiene from $25,000, its initial figure last year, to $125,000. An appropriation of $75,000 was also made as a part of the United States Public Health Service program for combating venereal disease. For the rehabilitation of the injured an appropriation was made of $55,000.

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New Mexico.—This state has passed through both branches of the legislature a modern health law, giving broad administrative powers to the state board and the health commissioner, and ample machinery for effective health, sanitary, quarantine and statistical work. It gives the health board power to inspect and regulate as to purity the milk, meat and food supplies. There is to be a board of three members, only one of whom must be a physician. The health commissioner may or may not be a physician, but must have experience and special training. The salary is $3,000 a year, with a general appropriation of $8,000 for the present year, to be increased to $12,000 in future years. County and municipal health officers are still appointed by the local authorities, but such appointments are to be subject to approval or rejection by the state board. Rigid qualifications are provided for physicians employed by the department. A system of reporting is embodied in the bill, the rights of the individual to select the physician or mode of treatment are protected, and penalties are provided for violations of the law or of the health regulations.

The Senate has passed an act to establish a child welfare service for the state of New Mexico. The board created consists of six members and has authority to choose a director of child welfare, who is to have his office in the department of education.

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Oklahoma.—The last official act of the seventh legislature of Oklahoma, recently adjourned, was to pass a sanatorium bill. This is one which has been supported by the Oklahoma Tuberculosis Association. It provides for two sanatoria for white persons and one for negroes. The appropriation for the former is $200,000 and for the latter $50,000, with an additional $100,000 for maintenance during the coming two years. The same bill provides for a Bureau of Tuberculosis in the State Department of Health, the chief of which is to receive a salary of $3,000 a year. Every county is authorized to levy a special tax of not more than one mill for a tuberculosis fund. This is to care for the larger part of the cost of maintenance of the sanatoria. The superintendent of each district sanatorium is authorized to establish tuberculosis dispensaries within his district and to employ at least one public health nurse on his staff. It is the beginning in Oklahoma of tuberculosis dispensaries and public health nursing.

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Ohio.—The most important public health measure to come before the Ohio general assembly at its present session is the Hughes health district bill, reorganizing local health administration, which has been passed by the House and has gone to the Senate public health committee. This bill establishes each city of 25,000 or greater population as a municipal health district and the territory in each county outside such cities as a general health district, each district being required to employ a whole-time health commissioner and at least one nurse and one clerk. Provision is made for the continuance of a city of from 10,000 to 25,000 as a municipal district under special order of the state commissioner of health, and for voluntary union of two general districts or a general and a municipal district. A state subsidy of one-third the amount paid as salary to the three required employees, with a maximum subsidy of $2,000 a year, is provided. Appointments are to be made from civil service eligible lists. A budget system of finance is established for the districts, with expenditures of general districts apportioned among participating municipalities and townships on a basis of population. The new organization, if adopted, will replace a system under which each city, village and township constitutes a separate health district—making more than 2,100 districts in all, only a half-dozen of which employ full-time health officers.

By a bill passed as an emergency measure, and

thereby already in effect, local boards of health in Ohio are authorized to employ public health nurses. Lack of such authority, heretofore, has made it necessary for local nursing service to be maintained by private funds.

The state commissioner of health is given power to "define and classify" hospitals and to require annual reports from them, by the terms of another bill which has been enacted into law.

Establishment, by court action following a hearing upon a petition of freeholders, of sanitary districts comprising parts or all of different local political units, to bring about united action of communities to solve common problems of stream pollution, sewage disposal or water supply, is authorized by a bill which has passed the Senate and has gone to the House. This legislation is especially needed at present in the thickly populated lower Mahoning valley—the Youngstown region.

Another bill of importance from a sanitary engineering viewpoint, passed by the Senate, will wipe out the necessity for a popular vote on bond issues necessary to carry out sanitary improvements ordered by the State Department of Health.

Summit county is expected to take action soon under a bill which has been passed permitting a county which holds membership in an inter-county district tuberculosis hospital, to establish a county sanatorium also, if the district hospital's facilities are deemed inadequate.

Two school health supervision bills are pending, one making the establishment of such a system optional with local school authorities and the other making this action compulsory, by providing that state financial aid shall be withheld from districts which fail to comply.

A bill establishing a penalty for failure to report occupational diseases puts teeth into a law which physicians are now to a large extent disregarding.

More rigid regulation of prostitution, with penalties for men on the same basis as for women, is provided by another bill.

A measure for the sterilization of defectives, identical with a bill which has been killed at previous sessions, has been introduced.

*

Wisconsin.—The state legislature passed, in record time, the State Board of Health appropriation bill for two years, carrying $50,000 annually for administration (an increase of $15,000), and $25,000 annually for venereal disease prevention work.

A measure to require every county in Wisconsin to maintain a public health nurse has been advanced in the lower house of the legislature. As amended in committee it makes appointive for the position public health graduate nurses or public health instructors, either of whom may be certified by the committee of examiners named in the bill. Many state and civic organizations advocated the measure.

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GENERAL NOTES OF STATE HEALTH WORK

Illinois.—About seventy cases of lethargic encephalitis have been reported during the past few weeks. Dr. S. S. Winner, district health officer of the state department, has been assigned to the study of the clinical and pathological findings of each case.

Within the past two years forty county tuberculosis sanatoria have been created in Illinois. The measure was carried in thirty-three counties at the elections in November, 1918. The LaSalle County Sanatorium and the Peoria Municipal Sanatorium have been opened, and the Adams County, Morgan County and McLean County Sanatoria are nearing completion. Each county sanatorium will have a free tuberculosis dispensary and visiting nurse service connected with it.

The LaSalle County Tuberculosis Sanatorium, the first of forty county sanatoria created in Illinois during the past two years, was recently dedicated at Ottawa. The principal speakers were Dr. David R. Lyman of Wallingford, Connecticut, president of the National Tuberculosis Association, and Dr. C. St. Clair Drake, director of the Department of Public Health. Over thirty-five hundred persons inspected the building during the day. Under the Illinois County Tuberculosis Sanatorium Law, the county institutions are free for rich and poor alike, and have connected with them free tuberculosis dispensaries and visiting nursing service financed through a special tax.

The Indiana State Board of Health was reorganized according to law April 9, by the election of Hugh A. Cowing of Muncie as president and Dr. John H. Hewett of Terre Haute for vice-president, to serve for two years. Dr. Hurty was elected as secretary to serve for four years. This will be the seventh term served by Dr. Hurty.

The Venereal Division of the Indiana State Board of Health has been organized, with William F. King as director, and E. C. Helwig assistant. Five clinics have been established in the following cities: Indianapolis, Muncie, Anderson, Evansville, and East Chicago. Each clinic has its superintendent and nurse. There are eight inspectors for the state, two investigators for Indianapolis, and fifteen public lecturers for the division.

Kansas.—The annual school of Kansas state health officers will be held the week beginning May 12 to the 17th at the School of Medicine of the University of Kansas, Rosedale.

Venereal disease clinics have been established at Rosedale, Leavenworth and El Dorado, and preparations for opening venereal disease clinics are under way at Wichita, Pittsburg, Lawrence and Topeka.

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Louisiana.—Captain H. F. Smith formerly director of health, Alexandria and Rapides Parish, has been detailed to look into cases of encephalitis lethargica. Dr. Smith will make his first trip through Louisiana. The unit Rapides Parish under the U. S. Public Health Service has been transferred to the Louisiana State Board of Health. Dr. C. M. Abbott is director. Mr. J. H. O'Neill, sanitary engineer, Louisiana State Board of Health, will direct the soil pollution and malaria. Dr. J. P. Lobenhoffer is in charge of the laboratory. Dr. Mayer Newhauser has been made medical director. Two nurses are to be employed to take the place of the Red Cross nurses whose time expired April 1.

Dr. William Edler, scientific assistant, U. S. Public Health Service, has been "loaned" to the Louisiana State Board of Health for special work in connection with the venereal disease campaign.

Sergeant T. M. Pierce, Camp McArthur, Texas, has been appointed for duty in the Louisiana Division of Venereal Diseases.

Dr. W. H. Seeman (Captain), bacteriologist, Mr. J. H. O'Neill (Captain), sanitary engineer, and Mr. Hugo Fritsch (Private), have returned from war duty.

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Maryland.—Cumberland has attracted the attention of health officers and the general public by its bulletins. A little review of the work of the city has come to the *Journal* from Dr. Max Colton, health officer. In sending in a new member Dr. Colton makes note that four years ago when he assumed his duties at Cumberland the appropriation was $4,000, for 1919 $10,000 and perhaps more will be available. In addition there are coöperative relationships between the city, county and state, whereby certain functions are cared for by all three, the bacteriological laboratory, for example. Cumberland has a venereal disease clinic.

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Massachusetts.—A sub-division of Public Health Nursing has been created within the division of Hygiene. This will include the health instructor nurses of the division of Hygiene. Miss Blanche Wildes, one of the present health instructors, has been appointed chief of this sub-division.

Dr. Edwin N. Kent of Boston has been appointed supervisor of mouth hygiene in the division of Hygiene. Dr. Kent is now president of the Dental Hygiene Council of Massachusetts. His work for the present will have to do with the preparation of educational material on mouth hygiene and gathering and correlating information regarding dental dispensaries in the state.

Miss Bernice W. Billings, for the past year chief of the sub-division of Tuberculosis in the division of Communicable Diseases, has resigned to accept a position as executive secretary of the Oneida County Tuberculosis Committee, New York.

Dr. Hugh Cabot of Boston has been appointed director of clinics in the sub-division of Venereal Diseases of the Massachusetts State Department of Health. His efforts will be directed towards the standardization of work in the sixteen state approved venereal clinics and toward familiarizing the physicians of the state with the opportunities for expert treatment and advice to be found in them.

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New Jersey.—In order to bring to a climax the activities of New Jersey along the lines of infant welfare, as these were conducted during Children's year, and to concentrate the interest of the workers of the state upon certain definite and fundamental tasks, Dr. Julius Levy, director of the Bureau of Child Hygiene, has named the week of May 17 to 24 as Baby Week, and has offered to the Child Welfare Committee of the Council of National Defense, a specific program of work.

Visiting in connection with birth registration will be done by the local committee of the Council of National Defense. Each mother whose baby's birth was recorded in 1918, or who will attend to the duty of having it recorded, will receive from the state a birth certificate. During this week each municipality whose infant mortality rate is below 100 will be given a banner as a mark of honor, and a chevron will be added for every 10 points below 100. The banner will be made up in the state colors, buff and blue, and will bear the state seal.

*

New York City.—There has been a special effort to reduce the development of diphtheria and to increase the number of persons immunized. Posters have been used and coöperation sought of the education authorities, public, private and parochial. There has been a recent revision of the milk regulations of the city in order to permit the sale of milk products and milk formerly excluded, and in order to aid in conservation generally of food. In response to the call of the Federal authorities, investigations were made to determine whether the spores of anthrax could be found in the bristles used in manufacturing shaving brushes. Three

cases of anthrax have been reported, all of them with fatal terminations. The Department of Health has required all manufacturers to have their bristles disinfected. Influenza is reported on the wane, and the department is continuing careful supervision of the cases and is giving attention to after care of the convalescent. Sixteen cases of lethargic encephalitis have been reported in the city, the commissioner of health having requested all physicians to report such cases.

Especial attention is being given by the New York department in coöperation with the Committee of Physicians and contemplates setting apart a ward for the treatment of drug addicts who voluntarily submit themselves for treatment. The department made some time ago, December 21, 1918, a classification of milk, which included fifteen varieties of milk and milk products, and adopted a resolution with reference to them as an amendment to the sanitary code.

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New York State.—Forty-one health officers and physicians have registered for the post-graduate course in infectious diseases and public health which is being given by the Albany Medical College and the State Department of Health.

As a result of the tuberculosis survey recently held in Clinton county, the Board of Supervisors have appropriated $1,200 and the necessary traveling expenses for a county tuberculosis nurse, for one year.

Immediately following the tuberculosis survey in Clinton county, four persons made application to the county superintendent of poor, for care at Ray Brook or at a county tuberculosis hospital.

A four weeks' course is under way in community health nursing, given at the University of Buffalo through its coöperation with several other agencies, namely,—the New York State Department, the Rochester Health Bureau, the Rochester Tuberculosis Association, and the Monroe County Tuberculosis Association.

The Dutchess County Health Association (N. Y.) is making use of Vassar College students for health education of school children. The students who are taking the course in public speaking are sent out to the county schools to give talks on health subjects. Usually three girls will go to a school on Friday afternoon and occupy a half hour between them. The girl who talks on teeth goes armed with a tooth brush. The girl who speaks on posture takes fresh sheep's lungs and blows them up, much to the interest of the children. The girl on ventilation takes tubes of lime water and lets the children blow into them and watch the clear lime water turn milky showing that the air breathed out is different from air breathed in, etc.

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North Carolina.—The officials of Vance county have made provision for the organization and conduct of a full-time county health department. The work has been arranged through the coöperation of the county with the state and international health boards and a three-year plan of work has been agreed upon. A health officer will be selected in the near future to take charge of the department, the offices of which will be located at Henderson.

Vance will be one of nine counties in which the State Board of Health is assisting in health work, the other counties being Forsyth, Davidson, Lenoir, Nash, Northampton, Pitt, Robeson, Rowan, and Wilson.

In accordance with the appeal of the A. P. H. A. through its president, Dr. Frankel, the North Carolina Board is urging every person who had the influenza to go to a physician and be thoroughly examined, in order to find out if any injury has been done to his vital organs by the disease.

North Carolina has already begun to assume her responsibility to her soldiers, sailors and private citizens as regards venereal diseases. The State Board of Health is waging an active campaign for the eradication of this great health menace by endeavoring to inform and educate as far as possible every citizen as to the nature and danger of the disease and by suppressing the prostitute and the near prostitute. By its efforts, several of her larger towns have appropriated funds for establishing venereal disease clinics. The citizens of Asheville have voted to establish a free clinic and have purposefully set about to make their town a safe home for all their people as well as for the returning soldiers and sailors. Wilmington has also appropriated funds for a free venereal disease clinic, and it is understood that Greensboro and Winston-Salem will do so in the near future.

It is interesting to know that business men are beginning to realize that people who do not take care to keep themselves or their families well are not as safe to have financial dealings with as citizens who protect their health. Dr. L. J. Smith, health officer of Wilson county, has interested the leading banks and tobacco warehouses of his county as to the importance of dealing only with people who have safeguarded their health. Whenever a man applies to one of these institutions for a loan he is asked if he has a sanitary privy at his home and if his family has been vaccinated against typhoid fever. This is a sound business precaution which should be more widely adopted.

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Have you added your member?

Ohio.—Approximately two thirds of the Ohio men discharged from the army or rejected by draft boards because of tuberculosis are receiving attention from local public health nurses of the state, according to an estimate of the state department of health today. The other one third live in communities which do not maintain nursing service and are consequently without such care. Of 1,958 rejected and discharged tuberculosis victims reported to date to the health authorities, 1,272 live in nursing jurisdictions and 686 live outside such areas. Any local board of health in Ohio has authority to employ a public health nurse. Any county can establish a tuberculosis dispensary or join other counties in establishing a district tuberculosis hospital. Any municipality can establish its own tuberculosis hospital.

March was a banner month for the laboratories of the state department of health. More chemical and bacteriological examinations were made than in any previous month. The March total was 2,821 examinations, according to the monthly report given out today. Wassermann examinations for the diagnosis of suspected cases of syphilis are chiefly responsible for the increase. Of the 2,266 bacteriological examinations included in the March total 1,391 were Wassermanns. Examinations for other diseases included: Tuberculosis 391, typhoid 34, diphtheria 277, gonorrhea 94, rabies 19.

Childhood epidemic diseases are on the increase in Ohio with the coming spring. Statistics on contagious disease cases reported to the state department of health show an increase.

The bureau of venereal diseases of the state department of health, maintained in coöperation with the U. S. Public Health Service, has established clinics in fifteen cities and is carrying on an extensive educational campaign, employing literature, lectures, exhibits and motion pictures. A slight influenza recurrence, marked by a fatality rate higher than in recent previous months but not approaching in extent the fall outbreak, occurred in Ohio in March. Through hospital care for eighteen cases of ophthalmia neonatorum, provided by the state department of health in 1918, the sight of sixteen eyes was saved at an average cost of $16 each. Several cases of lethargic encephalitis were reported from various parts of the state during late March and early April, but no marked outbreaks were noted during that period.

The city of Salem, Ohio, according to a report just compiled, by providing free antitoxin for all diphtheria cases, reduced its diphtheria deaths from 48 in the ten years immediately preceding 1900 to one in the ten years following 1900. The free antitoxin system went into effect in 1900.

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Oklahoma.—Dr. A. R. Lewis of Ryan, Okla., has been appointed state commissioner of health for Oklahoma by the governor. The sanitary survey of the state is to be resumed in May and for the work Murray P. Horowitz, B. S., instructor in the Massachusetts Institute of Technology, has again been delegated to coöperate with the Oklahoma Tuberculosis Association and other state and municipal agencies.

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Wisconsin.—Dr. William L. Holt, full-time health officer of Beloit, Wis., resigned April 7 to remove to California because of illness of two of his children. He served little more than a year, but placed the health department upon a fully organized, full-time basis.

The Racine Public Health Council completed its organization by electing a full set of committees and officers, with William Harvey as president. Dr. C. A. Harper, state health officer, delivered an address at the final organization meeting. He advocated health department appropriations equalling those for fire and police protection, and urged school inspection and more coöperation with organized health agencies.

Influenza in March attained epidemic proportions in Wisconsin for the third time in six months. Many communities were severely striken, notably Madison, the capital, where restrictions upon public assemblages were again ordered. The death-rate was comparatively high.

Twenty-nine suicides in Milwaukee in the first three months of the year prompted the county coroner to ask the legislature for passage of a bill prohibiting the indiscriminate sale of carbolic acid, lysol, and other phenol products and by-products. His measure provides that no person shall sell more than a 3 per cent solution of these products without a physician's prescription.

Dr. James R. Bean of Philadelphia has been appointed full-time health commissioner of Oshkosh, Wis., and director of the state coöperative laboratory of hygiene there, succeeding Dr. A. H. Broche, resigned. The new commissioner is a graduate of the University of Pennsylvania (1911), and has served as bacteriologist for the Florida State Board of Health. He also spent fifteen months as an officer in the medical corps of the American forces in France.

Milwaukee, with an estimated population exceeding 500,000, had only twenty-five typhoid deaths in 1918.

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Remember it is now, "New Orleans, October 27-30!"

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh and P. M. Holmes.

Limitations of Occupational Disease Compensation.—There are three methods by which occupational diseases may be brought under workmen's compensation laws: First—List from half to two dozen occupational diseases. This is the British method adopted in 1906. The list has not been extended beyond twenty-four afflictions, most of which rarely occur, and the compensation received by sick workmen has been insignificant. In 1913, the latest year for which figures are available, the number of cases compensated was 1.7 per cent as large as the number of accidents, and the compensation paid was only 4.5 per cent of that paid for accidents. Second—The compensation law should include "occupational diseases," and leave the matter of determining what are occupational diseases to an administrative commission. Neither Congress nor state legislatures find this practicable. They wish a definition of occupational diseases, and as yet no one has been willing and able to make a definition that is workable for this legislative purpose. Third—Amend compensation laws by striking out all reference to accident and by inserting instead the term "personal injuries." Congress finally adopted this method as a compromise for the federal civilian employees, and during the first ten months only seventy cases of occupational disease disability were reported to the United States Employees' Compensation Commission. Massachusetts has given this method a trial since 1911, but of 135,257 personal injuries reported only 2,029, or 1.5 per cent, were reports of occupational disease, and in only 1,351 of these did the disability last more than one day; whereas Massachusetts pays no cash compensation except when disability lasts longer than fourteen days. California adopted this method in 1915, but in the year 1916–17, only 384 occupational disease claims were presented, the average lost time being eleven days and the total compensation paid about $4,000. It is significant that California and Massachusetts, the first two states to put occupational disease compensation to a practical test, have recognized the limitations of this form of protection, and were the first two states to create official commissions to prepare the way for workmen's health insurance. The difficulty is to prove that the disability is due to the nature of the employment and not to something else. The effective way to handle the matter is to cover all sickness regardless of its cause. There is danger in adopting workmen's compensation for these diseases in that the workers believe that they are getting something of great value, only to be keenly disappointed later. It is an excuse for delaying the movement for health insurance, which is to be of greater benefit to the workmen than accident compensation.—John B. Andrews, *American Labor Legislation Review*, Dec., 1918, pp. 311–15. (*E. R. H.*)

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Prevention of T. N. T. Poisoning.—Four hundred and two T. N. T. workers, thirty-six of whom were women, were examined in six plants by medical students working under the direction of The National Research Council. Plants were located in New Jersey, Virginia, Pennsylvania, and Wisconsin. Chemical and microscopic examinations were made, including the Webster test, which is described. Conclusions reached are as follows: (1) The skin is by far the most important channel of absorption. (2) The young are more susceptible than the fully grown. (3) There was apparently no difference between negroes and whites as regards susceptibility. (4) There is no indication that women are more susceptible than men. In order to compare their resistance, it would be necessary to study men and women working in the same occupation. The effect on offspring would also have to be considered. (5) Poisoning is much more common and severe in hot weather and the effect is increased by humidity. (6) Absorption takes place early during exposure, one-third experiencing effects before the expiration of a fortnight. (7) Most persons eliminate absorbed T. N. T. within a fortnight after complete removal from exposure. (8) Amatol was more readily absorbed than pure T. N. T. and dermatitis was more frequent in the plants where crude T. N. T. was handled. (9) The early symptoms are: short breath on exertion, dizziness on stooping over, headache, fatigue, loss of appetite, bad taste, morning nausea. The three elements in prevention of T. N. T. poisoning are: intelligent medical supervision, cleanliness of premises and cleanliness of person.—Alice Hamilton, *Monthly Labor Review*, Jan., 1919, p. 248. (*R. P. A.*)

✽

Dermatitis and Wound Infections from Cutting Oils.—The most important preventive measures include keeping the oils free from contamination, and personal hygiene. Sterilization by heat and disinfectants are of secondary importance. Susceptible persons should be transferred to other work. Further investigation and experimental work are

greatly needed. A bibliography is appended.—Anna Baker Yates, *Monthly Labor Review*, Jan., 1919, p. 273. (*R. P. A.*)

✱

Standards for Measuring Efficiency of Exhaust Systems in Polishing Shops.—The suction head in the duct of the exhaust system is the standard upon which present laws and regulations are now based. A more valuable standard from the sanitary standpoint would be based on actual velocity of exhaust at the point of dust production. More desirable still is a standard that rests upon the number or weight of dust particles actually contained in the air breathed by the worker. In experiments carried out in polishing shops, it was determined that a fall in suction head was at once followed by an increase of air dustiness. It is suggested, as a result of determinations made under varying conditions, that an average suction head of three inches should be maintained, when measured at a number of different points. A linear velocity of 2,500 feet per minute should be maintained at the throat of the exhaust duct. Proper relation should be maintained between static head and linear velocity. Case is cited in which a clogged screen reduced the velocity by one-half, the suction head remaining at least as high as when duct was unobstructed. Proper design of whole exhaust system will materially affect the results. In general, it is agreed with Lanza, Higgins, et al that "the most reasonable standard, then, appears to be one based on the quality of dust that will remain in suspension after the best known methods have been put into use for its abatement."—C. E. A. Winslow, L. Greenburg and H. C. Angermeyer, *Public Health Reports*, March 7, 1919, p. 427. (*R. P. A.*)

✱

Simple Tests of Physical Efficiency.—Tests for physical efficiency of the individual were made on healthy controls. In the six tests advocated, technique should be carried on in the same way on all occasions. The tests are as follows: (1) The response of the pulse to exercise. "Preferably the sitting rate of the pulse is first taken. The pulse-rate is then taken standing. If the rate is unsteady it should be counted in periods of 5 seconds until a steady rate is obtained. The candidate is then put through a regulated exercise, which should be carried out as follows: Standing before a chair, he places one foot upon the seat of the chair and steadily raises his whole body to the height of the seat five times in 15 seconds, one foot being retained on the chair throughout. The examiner should regulate the speed and rhythm in the following way: Standing beside the candidate, holding the wrist, with his fingers on the pulse, the examiner swings the arm forward and backward to indicate the time of raising and lowering the body. The subject still standing, the examiner then counts the pulse in 5-second intervals, and notes the acceleration and the time taken to return to the previous rate. In a good subject the increase of rate is about 20 and the time of return to normal 15 to 25 seconds. If the time of return exceeds 30 seconds it is suggestive of cardio-vascular inefficiency." (2) The breath-holding test. The subject should hold the breath without any preliminary deep breaths. The patient's symptoms at the end have some significance. The average time is 69 seconds (minimum 45 seconds) and the sensations experienced "normal." The vital capacity averages 3800 c. cm., with a minimum of 3400 c. cm. (3) The third test is a combination of the two first ones. (4) The expiratory force is measured by blowing into a U tube manometer filled with mercury and recording the height to which the mercury is blown. It is a test of the measure of the tone of the abdominal wall. Its average should be 110 mm. Hg. with a minimum of 80 mm. Hg. (5) This is the vital capacity test mentioned above under (2). (6) Fatigue test (U tube). The subject is asked to empty the lungs, fill up, blow the mercury to the height of 40 mm. and hold it there without breathing for as long as possible. The nose should be clipped. The average sustaining time is 40 seconds. A valuable adjunct to this test is the behavior of the pulse during the time the mercury is being sustained. It is counted during each period of 5 seconds. Starting at the 5th second in the normal individual, there is generally a slow, steady rise in the rate of the pulse or a fairly marked rise which is sustained most of the time. Stress is indicated by a quick rate during the 5th to the 15th second and then a falling away in rate to normal or below normal. These tests were given experience among aviators and found reliable, and are suggested for measuring industrial fatigue and for the grading of people for positions of trust.—Martin Flack, Lt. Col., R. A. F. M. S., *The Lancet*, Feb. 8, 1919, p. 210. (*E. R. H.*)

✱

Program of Industrial Hygiene.—In the modern public health movement there should go side by side with the child conservation program an equally intensive program to prevent the causes of disease and death which operate during the period when the child is growing to manhood or womanhood, and during the subsequent period as well. This program of industrial hygiene as worked out in the New York City Department of Health calls first for the prompt reporting of occupational disease by physicians. These reports give a clue to the existence of industrial conditions which are a hazard to health

and life; and attempts are then made to remedy the conditions. Diagnostic clinics are established in factories investigated where conditions permit.

Of the miscellaneous activities carried out by the Department, it is to be noted that examinations of minors of both sexes who are receiving a vocational training has been begun, with a view of recording the physical conditions which may be found just before these individuals enter industry, and to follow up by periodic medical examinations and by sanitary supervision of the factories which they enter, in order to limit as far as possible by legal supervision the development of diseases which are the direct or indirect results of occupation. The establishment of clinics in night schools which are visited by young working people also offers many possibilities for education and health protection. Friendly relations with the leaders of labor having been established, it was possible then to organize with their coöperation an alliance between the Division of Industrial Hygiene and organized labor, which is known as the Labor Sanitation Conference. This conference is the clearing house through which the workers are informed of the special activities which are carried on for their protection, and thus the leaders are made to serve as active agents in the education of the workers, and in turn, the labor representatives transmit complaints and suggestions to the Division of Industrial Hygiene.—Harris, L. I., *N. Y. State Jour. of Med.*, Feb., 1919, 61. (*D. G.*)

✻

Women Workers in Engineering Trades.—Women workers may be divided into three groups—the educated type who can be prepared for skilled occupations, the domestic type who are mostly the daughters of small tradesmen and make good forewomen, and the factory type who are mainly concerned in making as much money as they can. The latter class seek piece work and object to learning more than one operation, as each change to a new occupation means a temporary set-back in wages. They are largely employed on unskilled work of a repetition nature. Women workers are as readily trained as men workers. They should have women as supervisors. The introduction of women means considerable trouble and some expense for the management, but the increased sanitation and welfare work are probably as necessary even for men and in the end pay for themselves in an increased out-put. In repetition work, women very quickly excel men in out-put. Women are probably in the engineering trade to stay. The difficulties with trades unions are not insuperable. Women in industry should not be allowed to degenerate industrially. They should not become laundry slaves and sweated tailoresses. The educational facilities of technical schools should arrange to fit women to rise to the highest place in engineering, chemical, and allied industries.—Excerpt, Minutes of Proceedings of the Institution of Mechanical Engineers (Miss O. E. Monkhouse and Ben H. Morgan), London. U. S. B. of L. S., *Monthly Labor Review*, Dec., 1918, p. 312. (*E. R. H.*)

✻

Report of the British Factory Medical Officer.—The amount and quality of production were increased when the health and physical needs of the workers were properly attended to. Women workers, as a rule did not feed themselves properly, which accounted for their frequent fainting attacks. These attacks became rare when they were properly fed. Casualties were reduced enormously by keeping the workers cheerful, preventing monotony, providing recreation, and a complete change during meal time. The factory medical officer should be a member of the factory staff. "Sickness among the workers might be caused by drink, industrial occupation, or illness, but before the occurrence of disease the effects of fatigue might make themselves felt, and this could only be properly dealt with by the factory officer who knew the conditions of work." Chairs of industrial health should be maintained in all departments of medicine in our universities because of the increasing demands for skilled industrial physicians. The factory doctor must be assisted by the factory nurse and the factory dentist. It should be the privilege of every worker to see his medical attendant in the daylight.—Dr. W. J. O'Donovan and Lord Chetwynd, *The Lancet*, March 15, 1919, p. 447. (*E. R. H.*)

✻

Hereditary Occupational Disease.—What is meant is the heredity of occupation instead of the inheritance of an affliction. A specific instance is related: A man presenting intense tremor of the hands for many years, and finally his son developing the same tremor. The diagnosis wavered between paralysis agitans, and certain other nervous afflictions. Krabbe remarks that when there is any doubt, neither of these diseases is involved. The son at 33 developed the same symptoms as the father, and for 9 years they were accepted as inherited nervous disease. Then someone investigated the exact nature of the work of the two. They were listed as "instrument makers," but it was found that their business was to fill thermometers with mercury!—Abstracted from Ugeskrift for Laeger, Copenhagen, by the *Journal A. M. A.*, March 1, 1919, p. 692. (*E. R. H.*)

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

Fate of Typhoid Bacilli in Normal and Typhoid Immune Rabbits.—The cultures were injected intravenously. There is no difference in the bactericidal powers of normal and immune rabbits. The lungs of immune rabbits take up a slightly greater number of bacteria than do normal lungs.—J. T. Parker and E. Franke, *Jour. Med. Res.*, 39, 301 (1919).

✻

Bacteriology of Canned Foods.—The investigation is part of a comprehensive examination of the question of food poisoning undertaken by Harvard University, in the Department of Preventive Medicine and Hygiene. It has been found that commercial canned foods, as found in the markets, are not always sterile, but may contain viable spores of bacteria. The living spores found in commercial canned foods are unable to grow in the food on account of the absence of oxygen. The vacuum is essential to the preservation of canned foods under present methods of processing. Food poisoning organisms such as *B. botulinus*, *B. enteritidis*, etc., are not found in commercial canned foods.—John Weinzierl, *Jour. Med. Res.*, 39, 349 (1919).

✻

Results Obtained in Tuberculous Patients Treated in 1913 with Friedmann's Serum.—Eighty-five tuberculous patients were treated with Friedmann's injections (tubercle bacilli of cold-blooded animals) in 1913, the lesions representing all degrees of the disease. After the lapse of five years the author was able to examine 25 of these patients and found that, all things considered, the results were good. As to the remaining patients, the majority gave favorable data as to their condition by letter. As all these cases offered undoubted clinical evidence of tuberculosis in 1913, the author does not hesitate to recommend Friedmann's treatment on a large scale.—F. Kraus, *Deutsche Med. Woch. schr.*, Dec. 26, 1918; *Med. Rec.*, 95,423 (1919).

✻

Treatment of Influenzal Pneumonia with Convalescent Human Serum.—Pooled serum from convalescent influenzal broncho-pneumonia patients has greatly reduced mortality, has shortened the course of the disease, and has proved almost a specific, not only during a waning epidemic but also during the more recent severe recrudescence.—L. W. McGuire and W. R. Redden, *Jour. A. M. A.*, 72, 709 (1919).

Influenza and Vaccines.—The author reviews the bacteriology of influenza and the use of vaccines. He believes that the position of affairs at the present day is most unsatisfactory. Really but little more is known now than at the time of previous epidemics, when the disease was attributed to an "influence" from the heavenly bodies and named accordingly.—W. D. Emery, *Practioner (London)*, 102, 64 (1919); *Jour. A. M. A.*, 72, 761 (1919).

✻

Study of Atypical Type II Pneumococci.—At least 12 subgroups of atypical Type II pneumococcus may be recognized by specific agglutination reactions (IIa to IIm). These subgroups have an incidence of 11 per cent in lobar pneumonia, and of 18 per cent in normal mouths. Certain groups (b, c, f, m) occur in normal mouths. Subgroups (a and h) are met with largely in connection with disease. The mortality of acute lobar pneumonia due to these atypical Type II pneumococci is fairly high—32 per cent.—E. G. Stillman, *Jour. Exp. Med.* 29, 251 (1919).

✻

Etiology of the Grippe.—Pulmonary juices after filtration are placed for a certain time in an incubator. On broth a growth of corpuscles, which were hardly visible in the microscope, was obtained. The inhalation of this culture of filtered virus produced a febrile process, having the character of influenza, in several persons. It is to be remarked that this process immediately followed the experimental infection without any incubation period.—E. Leschke, *Berl. Klin. Woch.*, Jan. 6, 1919; *Med. Rec.* 95, 456 (1919).

✻

Passage of Rabic Virus into the Brain and other Organs.—When the brains of rabbits and guinea pigs which died of rabies were washed with physiologic salt solution and immersed in neutral, sterilized glycerol, the rabic virus passed into non-rabic brains, liver and kidney immersed in the same liquid in contact with the rabic brains.—P. Remlinger, *Compt. Rend. Soc. Biol.*, 81, 55 (1918); *Chem. Abstr.*, 13, 452 (1919).

✻

Prophylactic Use of Mixed Influenza Vaccine.—A noteworthy degree of protection against influenza and its complications was obtained by means of a mixed vaccine freshly prepared from predominating etiologic bacteria. These observations should also

encourage further work along the line of immunity against pneumonia. To this end an attempt is now being made to regroup the Type IV pneumococcus with the object of adding it to a vaccine when needed.—A. J. Minaker and Robert S. Irvine, *Jour. A. M. A.*, 72, 847 (1919).

✻

Yeast Medium for Meningococcus Culture.—The preparation of the yeast medium is given. It is easily prepared and prolongs the viability of the meningococcus for at least a month.—F. Eberson, *Jour. A. M. A.*, 72, 852 (1919).

✻

Method of Estimating Hydrogen-ion Concentration in Urine.—The method is a modified Henderson method. The indicators used are methyl red, neutral red and rosolic acid. Toluol is to be added to the urine as a preservative when collecting a 24 hour sample or where analysis is delayed. Urines containing hemoglobin, bile or great excess of pigment may be dialyzed in a collodion sac against neutral 1 per cent saline solution for 30 minutes. The presence of protein in the urine does not interfere with the use of any of the indicators. A new notation for the various degrees of acidity is suggested that make the method easier for clinicians.—A. D. Haskins, *Jour. Lab. Clin. Med.*, 4, 363 (1919).

✻

Rapid Method of Determining Type of Meningococcus Infection.—The spinal fluid is centrifuged until clear; 0.5 cc. of this fluid is added to an equal amount of each of the four type serums. The tubes are thoroughly shaken and warmed to 37°C. in a water bath. A distinct flocculation appearing within a few minutes indicates a positive reaction.—H. Robinson, *N. Y. Med. Jour.*, 109, 464 (1919).

✻

Effect of Carbon Dioxide in Cultivating the Meningococcus.—The meningococcus grows well in atmospheres containing from 15 to 40 per cent oxygen. If small amounts of carbon dioxide affect the growth of the meningococcus on an artificial medium it is by changing the reaction of the medium, not by slightly reducing the oxygen tension of the surrounding air. A reaction favorable to the meningococcus depends solely upon the hydrogen-ion concentration of the medium. The optimum for the meningococcus is approximately at p^H 7.4.— F. L. Gates, *Jour. Exp. Med.*, 29, 321 (1919).

✻

Staining of Diphtheria Bacillus.—The technic described has been employed by the author extensively for eight years and has given excellent results. The stain is made by dissolving 0.1 gram of toluidine blue and 0.5 cc. of glacial acetic acid in 100 cc. of distilled water. The solution keeps well. Smears are prepared on slides in the usual way. Fix them by heat, and then place a drop of the stain on each smear. Cover at once with a cover glass. The excess of stain is removed by blotting. The slide is ready for examination about one minute after putting on the stain. The stain colors the bodies of the bacilli a faint blue and the polar granules a deep reddish purple. It is applicable to the detection of diphtheria bacilli in either cultures or in direct smears from swabs.—P. L. Sutherland, *Lancet* (*Engl.*), Feb. 8, 1919; *N. Y. Med. Jour.*, March 29, 1919.

✻

Comparison of Plate and Rapid Bacteriologic Methods of Milk Analysis.—136 milks have been analyzed by five different methods: direct microscopic, standard plate, lactose plate, little plate (Frost) and reduction test. In milks containing less than one million bacteria per cc. the 3 methods —standard plate, lactose plate and little plate— gave closely comparable results. The direct microscopic count was less reliable with milks having a low bacterial content than it was with poor milks. In milks containing upward of one million bacteria per cc. the lactose plates were found to be considerably higher (50 per cent) than the standard plates, the little plates tended to run somewhat lower, while the direct microscopic count gave highly satisfactory results. The results obtained with the reduction test closely approximate those obtained by the other methods. The little plates furnished results in one-eighth to one-fifth of the time required by the other culture methods.—J. E. Simmons, *Jour. Inf. Dis.*, 24, 322 (1919).

✻

Bacteriological Testing of Disinfectants.—The possible sources of error in the Rideal Walker method of testing disinfectants has been investigated by the Royal Institute of Public Health. It was found that the varying character of the peptone used in preparing the medium for the growth of the test organism has been the chief cause of the difficulties in obtaining concordant results as compared with pre-war times. The presence of blood serum and other organic matter affects the germicidal value of emulsified tar acid disinfectants as well as the phenol control. The number of times the organism is subcultured before use appears to affect the results considerably. Temperature also must be controlled. It is suggested that the test would be much simplified if a definite time of contact, the same for all dilutions, were used in the test instead of the intervals of 2½ minutes.—Communication from Research Lab. of Royal Institute of Public Health. *Jour. of State Med.*, Feb., 1919, 53. (*D. G.*)

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PRELIMINARY RESULTS OF NUTRITIONAL SURVEYS IN UNITED STATES ARMY CAMPS.

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and
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Abstract of paper read before Food and Drugs Section, American Public Health Association, at Chicago, Ill., December 9, 1918.

Before the war there had never been presented to food experts in this country an opportunity for the extended study of nutrition comparable to that afforded these investigators. Their report sets forth details of observations which support the "training ration," which is appetizing and secures a proper distribution of the nutrients.

THE Food Division of the Surgeon-General's Office,* organized early in September, 1917, for the purpose of "safeguarding the nutritional interests of the Army," was confronted at the outset with various questions relating to the amount of food required by soldiers in training. According to the best American authorities on nutrition the garrison ration of the U. S. Army provided much more than would seem to be required except for very heavy muscular work under rather severe conditions of weather and climate. These opinions were freely voiced in a conference† called by Dr. Alonzo E. Taylor on behalf of Mr. Herbert Hoover, food administrator, at the Food Administration Headquarters in Washington on September 20, 1917 "for the purpose of considering questions relating to the subsistence of the Army."

Contrary opinions were expressed by officers of the Army who had had much experience in small organizations with the army ration. Furthermore, it was explained by General Henry Sharpe, that the garrison ration as laid down in the

* Later established by effect of War Department, General Orders No. 67, 1918, as the Division of Food and Nutrition of the Medical Department, U. S. Army.

† There were present at this conference representatives of the Medical Department of the National Defense Council, of the U. S. Food Administration, of the Surgeon-General's Office, of the Quartermaster-General's Office, of the Bureau of Chemistry, Department of Agriculture, and of the U. S. Navy. The following named were in attendance: Surgeon-General W. C. Gorgas, Quartermaster-General Henry C. Sharpe, Colonel Puckle of the British Army, Col. E. L. Munson and Col. F. F. Russell, Medical Corps, Rear-Admiral Cary Grayson, Dr. Carl L. Alsberg, Dr. F. G. Benedict, Dr. Herman Biggs, Prof. R. H. Chittenden, Prof. D. L. Edsall, Mr. Herbert Hoover, Major T. C. Janeway, Dr. Vernon Kellogg, Dr. C. L. Langworthy, Prof. Graham Lusk, Prof. Lafayette B. Mendel, Prof. E. V. McCollum, Prof. R. M. Pearce, Prof. Raymond Pearl, Dr. Alonzo E. Taylor, Dr. R. L. Wilbur, Prof. W. H. Welch and Major John R. Murlin.

army regulations is not of necessity the amount of food issued; that the ration as defined by regulations is "the allowance for subsistence of one man for one day," the money allowance being calculated upon certain fixed amounts of the ration components* by the local quartermaster each month, so that it varies constantly with market prices. The system of savings in vogue was also explained, according to which the unexpended balance of the ration allowance accrues to the credit of the organization conducting the mess and according to which also, varying somewhat with local conditions but likely to obtain in all training camps in this country, a certain percentage of the ration allowance can be drawn in money and be spent in the local market for fresh vegetables or such other articles not carried by the camp quartermaster, as may please the fancy of the mess sergeant.

Mr. Hoover and Dr. R. L. Wilbur both alluded to the numerous complaints, which had come to the office of the U. S. Food Administration from civilians visiting army camps thus far established, of the enormous wastage of food to be seen in those camps.

There was evident at this conference a deep reluctance on the part of the civilian authorities in nutrition, as well as on the part of army officers to make any arbitrary reduction in the ration allowance, even though it might be conceded that the soldiers could live on less. To meet this situation in the face of a threatened world shortage of food it was proposed by the director of the Food Division of the Surgeon-General's Office, that nutritional surveys be conducted by experienced observers in the several army camps with a view to determine quantitatively the actual consumption and the actual wastage of food. The plan proposed apparently met with the approval of all present although no vote to this effect was taken. It was unanimously approved by a group of experts* in nutrition who had agreed to act as an Advisory Council to the Division of Food and Nutrition, and was formally approved by the surgeon-general and informally by the quartermaster-general at that time.

While the immediate motive which prompted the nutritional surveys was the determination of the actual food requirements of the Army in the interest both of satisfactory nutrition and of food conservation, other objects were kept steadily in view, as may be inferred from the following excerpt from a memorandum submitted to the surgeon-general, and by him embodied in a letter requesting authority for the surveys from the chief-of-staff:

September 17, 1917.

1. Purpose. The object of this Division is primarily to safeguard the nutritional interests of the Army; (1) by means of competent inspection of the food supplied to the camps with reference especially to its nutritional value; (2) by seeking to improve the mess conditions (cooking and serving of the food) with special attention to the matter of food economy, bearing in mind that palatability and proper cooking are great factors in determining the economical utilization of food in the physiological, no less than in the financial sense; (3) by studying constantly the suitability of the ration as a working man's diet. Does it afford the proper amount and distribution of nutrients? What amount of variability is there, as between different mess houses of the same regiment and between different camps? Any intelligent alteration of the ration from time to time must be based on facts, and it is the purpose of this Division to get facts.

Method.

The method of conducting a nutritional survey was in brief as follows: A survey party, reporting to the command-

*See paragraph 1221, U. S. Army Regulations, 1913, corrected to 1918.

*Members of this Advisory Council were Dr. C. L. Alsberg, Dr. F. G. Benedict, Prof. Graham Lusk, Prof. L. B. Mendel, Prof. E. V. McCollum and Prof. A. E. Taylor.

ing officer, usually spent the first few days in becoming acquainted with the camp and in learning where typical messes could be found. The advice of the sanitary inspector and of the officer in charge of the School for Bakers and Cooks where such schools existed, was sought in determining which messes were fairly representative of the entire camp. The most highly efficient, as well as the poorest messes, were purposely avoided.

The first few days were spent also in a preliminary inspection of the subsistence stores and of the food on hand at the mess houses.

The number of messes selected for quantitative study varied all the way from a single mess at Camp Crane, Allentown, Pa., where all of the Ambulance Service students were fed at one large mess in the same hall, to 40 messes at Camp Lewis, studied by Capt. P. E. Howe's party in April, 1918. The average number of messes studied was in the neighborhood of half a dozen.

The quantitative survey was made according to the method which had been followed by the U. S. Department of Agriculture in making studies of the food consumption of people in small and large groups and which had been found satisfactory by Major Frank C. Gephart* in a study of food consumption and food waste at St. Paul's School, Concord, N. H.

This method had been employed also by the director of the Division of Food and Nutrition in a survey made by him at the first R. O. T. C., 1917, Plattsburg Barracks, New York. It consists essentially in making careful inventories by weight of all foods in the store room at the beginning and at the end of a definite period and of all accessions to stock during the period. Concurrently, the garbage is carefully separated into edible and inedible portions; the former is weighed, ground through a meat grinder, or chopped with spades according to the amount, and a sample taken for analysis. Any foods whose composition is in question are likewise analyzed. Deducting the second inventory from the first plus accessions to stock, and reducing to protein, fat, carbohydrate and energy content, and finally subtracting protein, fat, carbohydrate and energy found in the edible waste, the net consumption of food per man per day may be calculated.

Table I shows the average amount of food supplied, wasted and consumed per man per day; the distribution of fuel value in the food consumed; the percentage of each class of food wasted, as well as the percentage of the total fuel value wasted; the cost of the food consumed per man per day; the value of the food wasted; and the average amounts of total waste and edible waste. It will be seen that the average amount of food consumed has not changed materially with the increased number of messes. This is significant as showing that the number of messes surveyed is actually representative of the whole army in training.

Table II, comprising 385 messes, gives the consumption in the various kinds of messes. Differences are here brought out which are not apparent in Table I. A few messes of officers, cadets and prisoners were considered so atypical that they are not included in any of these groups.

The average total consumption of food at the mess amounts to a little over 3,600 calories. Since it was found by weighing 1,000 men (Camps Grant, Dodge, Funston and Devens) that the average soldier after five months training weighs 146.5 pounds net, this 3,600 calories amounts to about 24.6 calories per pound of body weight.

* Frank C. Gephart: Report on a Dietary Study of St. Paul's School, Concord, N. H. *Boston Medical and Surgical Journal*, Vol. CLXXVI, No. 1, pages 17–22, January 4, 1917.

TABLE I.

NUTRIENTS AND ENERGY CONSUMED IN TRAINING CAMPS.

	Food per Man per Day						
	Nutrients	Supplied	Wasted	Consumed	Consumed Distr. of FV	Wasted	Per Man per Day
Averages 49 messes	Protein gm	139	12	127	14 %	9 %	Consumed cost 41.39 ¢
	Fat gm	129	14	115	30 %	11 %	Waste cost 3.57 ¢
	Carbohydrate gm	539	40	499	56 %	7 %	Total waste ---- -- lb.
	Fuel Value Cal	3980	343	3637	100 %	9 %	Edible waste ------ lb.
Averages 68 messes	Protein gm	139	11	128	14 %	8 %	Consumed cost 40.82 ¢
	Fat gm	127	13	114	29 %	10 %	Waste cost 3.51 ¢
	Carbohydrate gm	537	37	500	57 %	7 %	Total waste .82 lb.
	Fuel Value Cal	3853	318	3635	100 %	8 %	Edible waste .45 lb.
Averages 85 messes	Protein gm	139	10	129	14 %	7 %	Consumed cost 41.58 ¢
	Fat gm	130	12	118	30 %	9 %	Waste cost 3.41 ¢
	Carbohydrate gm	536	35	501	56 %	7 %	Total waste .82 lb.
	Fuel Value Cal	3977	297	3680	100 %	7 %	Edible waste .43 lb.
Averages 143 messes	Protein gm	139	10	129	14 %	7 %	Consumed cost 42.55 ¢
	Fat gm	132	12	120	30 %	9 %	Waste cost 3.10 ¢
	Carbohydrate gm	534	33	501	56 %	6 %	Total waste .85 lb.
	Fuel Value Cal	3987	288	3699	100 %	7 %	Edible waste .44 lb.
Averages 185 messes	Protein gm	138	9	129	14 %	7 %	Consumed cost 42.17 ¢
	Fat gm	130	12	118	30 %	9 %	Waste cost 2.99 ¢
	Carbohydrate gm	529	32	497	56 %	6 %	Total waste .82 lb.
	Fuel Value Cal	3944	280	3664	100 %	7 %	Edible waste .43 lb.
Averages 213 messes	Protein gm	138	9	129	14 %	7 %	Consumed cost 42.75 ¢
	Fat gm	133	12	121	31 %	9 %	Waste cost 3.00 ¢
	Carbohydrate gm	527	31	496	55 %	6 %	Total waste .83 lb.
	Fuel Value Cal	3963	276	3687	100 %	7 %	Edible waste .42 lb.
Averages 361 messes	Protein gm	133	9	124	14 %	7 %	Consumed cost 43.35 ¢
	Fat gm	130	15	115	30 %	12 %	Waste cost 3.46 ¢
	Carbohydrate gm	513	32	481	56 %	6 %	Total waste .86 lb.
	Fuel Value Cal	3858	308	3550	100 %	8 %	Edible waste .40 lb.
Averages 427 messes	Protein gm	131	9	122	14 %	7 %	Consumed cost 44.06 ¢
	Fat gm	134	11	123	31 %	8 %	Waste cost 3.20 ¢
	Carbohydrate gm	516	31	485	55 %	6 %	Total waste 0.80 lb.
	Fuel Value Cal	3899	266	3633	100 %	7 %	Edible waste 0.38 lb.

TABLE II.

NUTRIENTS AND ENERGY CONSUMED PER MAN PER DAY BY TROOPS UNDER DIFFERENT CONDITIONS.

	No. of Messes	Protein	Fat	Carbohydrates	Fuel Value
		Gms.	Gms.	Gms.	Cals.
Line troops in active training and in Spruce Production Camps	263	127	120	483	3,615
Aviation Camps, mechanics only	38	118	119	469	3,510
Troops preparing for immediate overseas service	11	128	126	496	3,730
Medical troops, excluding patient messes	20	113	124	436	3,405
Messes under quarantine, activity of men not restricted	17	125	124	496	3,700
Recruits, usually just inoculated	36	117	109	435	3,275
Average of above *385 messes*		124	119	475	3,560

To this must be added the amount of nutrients consumed from the post exchange or canteen. Survey parties have made estimates of the man per day consumption from the canteens in a large majority of the surveys; some of individual companies, some of entire regiments, and a few like Camp Crane and Chanute Field, of entire camps. The average daily consumption from the canteen is 365 calories; the average total consumption of nutrients, therefore, is 3,998 (3,633 plus 365) calories or 27 calories per pound. According to Lusk, 3,898 calories is the amount required by a mature soldier of this weight in order to maintain his body and to do a forced march on a level road of thirty miles in ten hours, carrying a pack and other equipment weighing 44 pounds. This coincidence is striking. It is evident, therefore, that the soldier in training eats enough every day to do this large amount or work, or provide for the exigencies of unfavorable weather conditions. If the work is not done, he accumulates fat; and as a matter of fact the observation of this Division (Camps Devens, Grant, Dodge, Funston) indicate an average gain of $7\frac{1}{2}$ pounds in three months. It would not be proper to regard this gain as entirely consisting of fat, however, since there is undoubtedly, at least in the case of men from sedentary occupations, considerable "muscling up." There is also increase in stature, or "straightening up," of the younger men.

It is particularly interesting to note in Table I the constancy of distribution of the fuel value as to the three sources of energy,—protein, fat and carbohydrate. With the addition of the canteen purchases the final distribution, however, is somewhat different (see note at end of Table IV).

Most of the foods purchased at the post exchange are chocolates, soft drinks, cakes and pies. The fact that soldiers insist upon consuming such quantities of these articles (representing about 10 per cent of their total energy) constitutes a direct criticism of the mess. It is better to supply at least a part of the craved sweets in the ration. It will then be possible to discourage such sales and to safeguard the soldier against the sometimes injurious products manufactured by ignorant and unscrupulous firms. Moreover, it is interesting to note that although these post exchange goods consist chiefly of carbohydrates, the cheapest of the three classes of foods, the average cost of 1,000 calories is 28.2 cents; while the average cost of the same energy in the mess, where nearly one-half is supplied by the more expensive protein and fat, is only 12 cents.

The average energy value of the food supplied in 427 messes is 3,891 calories per man per day. The average edible

TABLE III

MONTHLY AVERAGES

Line Organizations, only

	Food per Man per Day						
	Nutrients	Supplied	Wasted	Consumed	Consumed Distr. of FV	Wasted	Per Man per Day
November 1917	Protein gm	139	13	126	14 %	9 %	Consumed cost 42.04 ¢
	Fat gm	133	15	118	30 %	11 %	Waste cost 3.98 ¢
32 messes	Carbohydrate gm	546	45	501	56 %	8 %	Total waste .85 lb.
	Fuel Value Cal	4045	377	3668	100 %	9 %	Edible waste .52 lb.
December 1917	Protein gm	144	8	136	15 %	6 %	Consumed cost 40.21 ¢
	Fat gm	127	10	117	29 %	8 %	Waste cost 2.46 ¢
37 messes	Carbohydrate gm	545	29	616	56 %	5 %	Total waste .87 lb.
	Fuel Value Cal	4006	245	3761	100 %	6 %	Edible waste .45 lb.
January 1918	Protein gm	137	8	129	14 %	6 %	Consumed cost 42.31 ¢
	Fat gm	134	11	123	31 %	8 %	Waste cost 2.66 ¢
45 messes	Carbohydrate gm	528	28	500	55 %	5 %	Total waste .71 lb.
	Fuel Value Cal	3973	250	3723	100 %	6 %	Edible waste .33 lb.
February 1918	Protein gm	137	10	127	14 %	7 %	Consumed cost 41.74 ¢
	Fat gm	131	12	119	31 %	9 %	Waste cost 2.96 ¢
30 messes	Carbohydrate gm	514	30	484	55 %	6 %	Total waste .78 lb.
	Fuel Value Cal	3887	276	3611	100 %	7 %	Edible waste .35 lb.
March, 1918	Protein gm	133	9	124	14 %	7 %	Consumed cost 42.67 ¢
	Fat gm	136	11	125	31 %	8 %	Waste cost 2.73 ¢
53 messes	Carbohydrate gm	525	28	497	55 %	5 %	Total waste .87 lb.
	Fuel Value Cal	3963	254	3709	100 %	6 %	Edible waste .37 lb.
April, 1918	Protein gm	133	8	125	14 %	6 %	Consumed cost 44.12 ¢
	Fat gm	134	10	124	33 %	7 %	Waste cost 2.85 ¢
60 messes	Carbohydrate gm	488	29	459	53 %	6 %	Total waste .95 lb.
	Fuel Value Cal	3792	245	3547	100 %	6 %	Edible waste .33 lb.
May, 1918	Protein gm	126	7	119	14 %	6 %	Consumed cost 41.98 ¢
	Fat gm	122	7	115	31 %	6 %	Waste cost 2.18 ¢
43 messes	Carbohydrate gm	497	24	473	55 %	5 %	Total waste .70 lb.
	Fuel Value Cal	3689	192	3497	100 %	5 %	Edible waste .29 lb.
June, 1918	Protein gm	129	8	121	14 %	6 %	Consumed cost 45.59 ¢
	Fat gm	129	12	117	31 %	9 %	Waste cost 3.29 ¢
16 messes	Carbohydrate gm	495	31	464	55 %	6 %	Total waste .90 lb.
	Fuel Value Cal	3758	271	3487	100 %	7 %	Edible waste .37 lb.

waste is 266 calories per man per day, which is 7.0 of the energy supplied. The weight of the edible waste was 0.38 pounds; and since it has been found that the average cost of edible waste is 7.9 cents per pound, this 0.38 pound represents a loss of about 3.0 cents. The principal items of waste are meat, bread and potatoes, these being the articles drawn in largest amounts.

Seasonal Variation.

The nutritional surveys have demonstrated for the first time on a satisfactory basis the larger consumption by men doing equally hard muscular work in cold weather. This fact was already well-known empirically, but, so far as known to the writers, had failed of demonstration scientifically. This seasonal variation is shown in the accompanying table which exhibits the actual average consumption of food per man per day in the different months beginning October, 1917, and ending December, 1918. The ratio of the different classes of foodstuffs consumed, however, remains nearly constant throughout the entire period of the survey.

Another factor affecting the consumption of food is the length of time in service. When the raw recruit begins training he is under various abnormal conditions all tending to reduce food consumption. It is the period of typhoid inoculation; the recruit is frequently homesick; unfamiliarity with his surroundings to a considerable extent prevents him from making himself as comfortable as he will later become; he frequently experiences dislike for the cooking and menu, which is later overcome in part because the cooks themselves improve, and in part by habituation. Studies of the body weights of recruits exhibit in this period a loss of several pounds which, however, is recovered by the end of the third or fourth week. The difference in food consumption is shown in the following comparison:

Mess consumption of recruits, average of 36 messes	3,275 calories
Mess consumption after men have been in camp three or more weeks, average of 251 messes	3,750 calories

In both cases the men were in line training and doing fairly heavy work.

While much work of inspection was done by the survey parties the chief object of their visits was to assist in the adoption of such measures as would result in proper nutrition of the soldier. Granting proper stimulus to the digestive organs resulting from hunger, proper nutrition is accomplished when food is selected with reference to the proper distribution of nutrients and is properly cooked and served. The garrison ration as issued (A. R. 1221) which is the *basis of feeding* for all training camps is a fairly well-balanced ration as regards protein, fat and carbohydrate, but not so as regards the mineral salts. The exact dietary selected by the average mess sergeant from the foods available at subsistence stores and from local sources has proved to be not so well-balanced. There is an excessive proportion of protein and, from the economical point of view, an unnecessarily large proportion of fat. Reference will be made later to this average dietary which has been selected in the training camps.

Instruction in the nutritional value of protein, fat, carbohydrate, mineral salts and vitamines has been given by individual interview and by conference with mess sergeants and mess officers of regiments in practically all the camps visited. This has resulted in a better understanding of their responsibilities on the part of mess officer and mess sergeant. Instruction has been given also in the construction of menus so as to insure a sufficient supply, without excess, of each of

the important foodstuffs. It is the general concensus of opinion amongst experts in nutrition that an excess of protein is undesirable in the dietary of a hard-working man, since muscular work does not involve destruction of muscular tissue beyond the amount sustained by that tissue in muscular rest. The amount of protein, which in general is held to be sufficient to repair all the wastes of the body and to supply an adequate reserve, is 13 per cent of the total energy intake. It seems to be a matter of indifference to the muscles whether they receive their energy from carbohydrate or from fat, except that carbohydrate yields its energy more rapidly than does fat. Hard muscular work, therefore, can be done on a high carbohydrate diet or upon a high fat diet. It is of general experience, however, that muscular work is done *with less effort* if there is a plentiful supply of carbohydrate. Moerover, it is well known that carbohydrate is a cheaper source of muscular energy than is fat. All the requirements for training of soldiers, therefore, would be met by a dietary supplying $12\frac{1}{2}$ per cent of the total energy in the form of protein, 25 per cent in the form of fat and $62\frac{1}{2}$ per cent in the form of carbohydrate. This distribution has been fixed upon as approximating the ideal for the training camps, the exact proportion of 1:2:5 having been chosen as a matter of convenience in devising a mechanical means of balancing the dietary.*

The Suitability of the Garrison Ration.

It has already been mentioned on page 401 that the garrison ration would seem to provide much more than the necessary amount of energy for the training period. The nutritional surveys have confirmed this view beyond peradventure. Even with moderate efficiency an organization can, under the existing system, effect very large savings. This obviously leads to wastefulness in the purchase of foods not needed, and numerous instances could be cited of almost profligate use of mess funds accumulated in only a few months of training.

In summary the garrison ration exhibits the following defects: (1) it provides more food than necessary; (2) it is not well balanced as regards the mineral salts; (3) there is an excess of fat. The first of these defects leads to wastefulness; the third makes it impossible to issue this ration in kind.*

A study of the actual average amounts of different articles of food selected on free choice by the mess sergeants, following, it is presumed, the express wishes of the men in their organizations, furnishes a safe basis for readjustment of the ration. Table V exhibits a comparison of the garrison ration with the average amounts of the various articles of food supplied in 400 messes scattered all over the United States and distributed fairly evenly throughout the year. In parallel columns also are shown the amounts of the various component articles recommended by the Division of Food and Nutrition as furnishing a better distribution of nutrients and yielding an adequate amount of energy even for the extreme needs of the soldiers in training. The amounts proposed in most instances follow closely the actual average consumption of food supplied throughout the period of heaviest training. It will be noted that the garrison ration provides an excess of meats of all classes and an enormous excess of flour or bread, slightly more than the amount needed of vegetables, scarcely enough of fruits and coffee and a wholly

* This mechanical "ration balance" will be described in a separate communication.

* Experience in the American Expeditionary Force has confirmed this opinion.

TABLE IV.

COMPARISON OF GARRISON RATION WITH AVERAGE AMOUNTS SUPPLIED IN 400 MESSES.

Food	Garrison Ration A. R. 1221		Supplied in 400 Messes		Proposed Training Ration		
	Components	Substitutes	Components	Substitutes	Components	Substitutes on Basis of	
						Energy	Protein
	Oz.	Oz.	Oz.	Oz.	Oz.	Oz.	Oz.
Beef, fresh	14		8.85		12		
Cheese						6.22	7.22
Corned beef (canned)						14.7	7.2
Eggs						19.72	15.68
Fish, fresh (salmon)				0.40		18.1	10.8
Fish, fresh (cod)						73.4	22.4
Fish, preserved				0.27		23.2	8.3
Hash, corned beef				0.19		22.7	13.2
Liver				0.22		21.9	9.3
Mutton						9.07	14.5
Pork				0.75		9.8	12.9
Poultry				0.19		13.1	12.6
Veal				0.26		20.7	10.3
Total beef, etc.	14		8.85	2.28	12		
Total beef, etc.	14		11.13		12		
Bacon		3.6	0.56		2		
Ham				0.61		3.7	1.3
Sausage, pork				0.86		4.7	0.9
Total bacon, etc.		3.6	0.56	1.47	2		
Total bacon, etc.	3.6		2.03		2		
Flour	18		2.38		10		
Bread, soft		18		6.59		10.67[1]	10.96
Bread, hard		16		0.08		9.22	10.00
Total flour, etc.	18		2.38	6.67	10		
Total flour, etc.	18		9.05		10		
Other cereals (oatmeal)			0.38		1.5		
Corn meal				0.51		1.68	2.70
Farina				0.45		1.65	2.50
Total other cereals			0.38	0.96	1.5		
Total other cereals			1.34		1.5		
Baking Powder	0.08				0.08		
Beans, dried	1.2		1.09		1.5		
Beans, baked, canned						4.01	4.90
Peas, canned				0.82	1.0		
Peas, dried						0.16	0.14
Corn, canned				0.80	1.0		
Total beans, etc.	1.2		1.09	1.62	3.5		
Total beans, etc.	1.2		2.71		3.5		

TABLE IV.—*Continued.*

Food	Garrison Ration A. R. 1221		Supplied in 400 Messes		Proposed Training Ration		
	Components	Substitutes	Components	Substitutes	Components	Substitutes on Basis of	
						Energy	Protein
	Oz.	Oz.	Oz.	Oz.	Oz.	Oz.	Oz.
Rice		0.8	0.43		1.0		
Hominy				0.30		1.00	1.04
Macaroni and Spaghetti				0.27		0.98	1.61
Corn Starch						0.97	
Total rice, etc.		0.8	0.43	0.57	1.0		
Total rice, etc.	0.8		1.00		1.0		
Potatoes, white	14		12.22		14		
Potatoes, white, dehy.						2.72	2.77
Potatoes, sweet				0.48	2.5		
Potatoes, sweet, dehy.						0.70	0.68
Total Potatoes	14		12.22	0.48	16.5		
Total Potatoes	14		12.70		16.5		
Onions, fresh		4	0.74		4		
Onions, dehy.						0.48	
Cabbage, fresh				1.11		6.44	
Cabbage, dehy.						0.52	
Beets, fresh				0.09		4.63	
Beets, dehy.						0.51	
Carrots, fresh				0.14		4.86	
Carrots, dehy.						0.49	
Spinach, fresh				0.21		7.07	
Spinach, dehy.						0.61	
Turnips, fresh				0.35		6.24	
Turnips, dehy.						0.50	
Total onions, etc.		4	0.74	1.90	4		
Total onions, etc.	4		2.64[2]		4		
Tomatoes, canned		2	1.41		2		
Tomatoes, dehy.						0.13	
Total Tomatoes		4	1.41		2		
Total Tomatoes	2		1.41[2]		2		
Prunes	0.38		0.46		0.5		
Apples, evap.		0.13	0.13[2]		0.25		
Peaches, evap.		0.13	0.32		0.25		
or pears, evap.						0.27	
or apricots						0.25	
or raisins and currants				0.13[2]		0.22	
Jam or Fruit Butter		0.64	0.59		1.00		
Total prunes, etc.	0.38	0.90	1.50	0.13	2.00		
Total prunes, etc.	1.28		1.63		2.00		

TABLE IV—*Continued.*

Food	Garrison Ration A. R. 1221		Supplied in 400 Messes		Proposed Training Ration	
	Components	Substitutes	Components	Substitutes	Components	Substitutes on Basis of Energy
	Oz.	Oz.	Oz.	Oz.	Oz.	Oz.
Bananas				0.34	1.5	
Apples						2.04
Cranberries						2.08
Lemons						3.1
Oranges				0.94		2.59
Peaches						2.88
Pears						1.72
Pineapple				0.19		0.62
Total fresh fruits				1.47	1.5	
Total fresh fruits			1.47[2]		1.5 (as banana)	
Coffee	1.12		1.08		1.2	
Tea						0.35
Cocoa						0.5
Total coffee, etc.	1.12		1.08		1.2	
Total coffee, etc.	1.12		1.08[2]		1.2	
Sugar	3.2		3.81		5	
Milk, evaporated	0.5		2.34		2.5	
Milk, fresh or reconstituted						5.30
Total milk	0.5		2.34		2.5	
Total milk	0.5		2.34		2.5	
Vinegar	0.64[4]					
or						
Vinegar	0.32				0.12	
Pickles		0.32			0.18	
Total vinegar, etc.	0.32	0.32			0.30	
Total vinegar, etc.	0.64				0.30	
Pepper	0.04				0.02	
Salt	0.64				0.5	
Cinnamon	0.014				0.014	
Cloves		0.014				
Nutmeg		0.014				0.014
Ginger		0.014				0.014
Total spices	0.014		0.003[2]		0.014	
Lard	0.32		0.11			
Lard substitute		0.32	0.66			
Total lard, etc.	0.32	0.32	0.77			
Total lard, etc.	0.64		0.77			

TABLE IV—*Continued.*

Food	Garrison Ration A. R. 1221		Supplied in 400 Messes		Proposed Training Ration	
	Components	Substitutes	Components	Substitutes	Components	Substitutes on Basis of Energy
	Oz.	Oz.	Oz.	Oz.	Oz.	Oz.
Butter	0.25		0.47		0.5	
Oleomargarine		0.25	0.11		0.5	
Total butter, etc.	0.25	0.25	0.58		1.0	
Total butter, etc.	0.50		0.58		1.0	
Sirup	1.78[5]		0.70		1.00	
Flavoring extract	0.014				0.014	
ENERGY SUPPLIED Calories	4859		3504[6]		4132	
% DISTRIBUTION OF Calories	P. 12.5	F. 33.3 C. 54.2	P. 13.8	F. 31.4 C.[8] 54.8	P. 12.6	F. 30.3 C. 57.1
[7] Canteen Cost based on Q. M. prices March, 1919	51.90¢		13.2	31.2 55.6	48.64¢	

[1] One two-pound loaf for each three men.
[2] These figures are based on 227 messes.
[3] Based on 4% fat.
[4] Equivalent to 0.16 gill.
[5] Equivalent to 0.32 gill.
[6] 3504 calories were supplied by articles enumerated above. In addition small quantities of a large variety of other foods were also used so that the total energy supplied amounted to 3900 calories. The percentage distribution of nutrients given is based on the food actually supplied by the messes.—(Calculations) F. H. S., 3–31–19.
[7] By addition of the average daily purchase from the canteen this distribution becomes: 13.2% P.; 31.2% F.; and 55.6% C. H.

inadequate amount of milk, butter and sugar.

This new ration which it is proposed should be called the "training ration" presents the following advantages: (1) as regards the chief components it is approximately what the soldier has selected during the period of training for overseas service: It is, therefore, a ration *which can be eaten* and which can be issued in kind, and which, if issued in kind, would satisfy the appetite. (2) It would compel organizations to secure their luxuries by exercising more rigid economy. This would result in increased efficiency of the mess and consequently increased conservation of food. (3) A satisfactory distribution of nutrients is guaranteed. There would, therefore, be no need of outside purchases of food. Consequently, (4), all purchases could be centralized in the hands of the quartermaster and this itself would result in greater saving to the government.*

That the United States has been generous, not to say extravagant, in the supply of foods for the soldier in training is clearly shown in the accompanying table comparing the rations of the different Allied armies. It will be seen also that the proposed training ration, while effecting a saving of 10 per cent over the existing garrison ration, still provides 12 per cent more than the ration used by any other army during the period of training. The same can be said also for the field rations. The improved field ration

* This change has recently been authorized by changes in Army Regulations No. 83 effective April 1, 1919. The savings privilege has also been abrogated—all unused credits on account of rations reverting to the government.

TABLE V.

TRAINING RATIONS.

Ration	Protein	Fat	Carbohyd.	Protein	Fat	Carbohyd.	Total	Protein	Fat	Carbohyd.
	Gm.	Gm.	Gm.	Cal.	Cal.	Cal.	Cal.	%	%	%
British Home: May, 1918	124	136	419	507	1268	1708	3483	14.6	36.4	49
Canadian Training: Sheet No. 40, July 23, 1918	107	118	344	439	1097	1410	2946	14.9	37.2	47.9
French Normal: March 29, 1918	138	98	467	566	911	1915*	3604	15.7	25.3	59.0
Italian Territorial: Feb. 1, 1917	127	38	469	521	353	1923	2797	18.6	12.6	68.8
U. S. Garrison: A. R. 1221, July 16, 1918	147	174	643	605	1619	2635	4859	12.5	33.3	54.2
U. S. Training Ration: (proposed)	127	135	575	520	1254	2358	4132	12.6	30.3	57.1

* Includes 250 cc. wine equals 212 calories.

FIELD RATIONS.

Ration	Weight			Fuel Value			Total	Distribution		
	Protein	Fat	Carby.	Protein	Fat	Carby.		Protein	Fat	Carby.
	Gm.	Gm.	Gm.	Cal.	Cal.	Cal.	Cal.	%	%	%
British Field: May, 1918	156	153	441	640	1423	1808	3871	16.5	36.8	46.7
British Field and Trench: May, 1918	157	166	485	644	1544	1989	4177	15.4	37.0	47.6
French Strong: March 29, 1918	150	105	509	615	977	2407*	3999	15.4	24.4	60.2
Italian Combating: Feb. 1, 1917	131	45	535	535	419	2196	3329†	16.9	13.4	69.7
U. S. Trench, adopted Nov. 1, 1918: (Garrison and additions) Nov. 1 to March 31 incl.	162	209	594	664	1943	2435	5042	13.1	38.6	48.3
Apr. 1 to Oct. 31 incl.	145	175	594	594	1627	2435	4656	12.8	34.9	52.3

* Includes 375 cc. wine equals 320 calories.
† Includes wine equivalent to 179 calories.

adopted November 1, 1918 for the American Expeditionary Force is considerably larger than that of any other army of the Allies.

It was in this pleasant James McConnell Memorial Hospital at Farm Life School, Moore Co., N. C., that the afternoon session of the State Health Officers' Association was held on April 14. It is a bright, sunny spot, with inviting outlooks, certainly conducive to speedy convalescence and recovery.



A BRIEF REVIEW OF INDIRECT CONTACT TRANSMISSION AND A PRELIMINARY REPORT OF CORROBORATIVE LABORATORY RESEARCH

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Port of Embarkation, Newport News, Va.

Risk of infecting the hand through careless dishwashing, mess-kit washing being the method considered, has already been discussed by this author. Here he follows up field observation with laboratory tests. He oxonerates home dishwashing and states that it is not a major route of hand infection. : : : : : : : : :

IN former reports on indirect transmission attention was directed to the difference in influenza rates among troops using tableware and among those using mess-kits. In our first report of 22,084 troops, epidemiological investigation showed that 80 per cent of the cases occurred among troops using mess-kits.* In a subsequent report a study was made of the incidence of the infection among additional troops making a total in the two series of 66,076 men.† In this last series of studies the ratio of cases between troops using tableware and those using mess-kits was approximately 1–5. In both these series of studies 80 per cent of the cases occurred among men using mess-kits.

This increased incidence among those troops using mess-kits was accounted for on the following basis: In a large number of field observations it was determined that the average temperature of the mess-kit wash water was scarcely more than body temperature; this water was inadequate in amount and became grossly contaminated with organisms from mess-gears and hands.

This wash water was the most intimate and common point of contact for all men in an organization. It was the chief focus to which contagion was added and taken away by men composing the organization. This exchange of mouth organisms through the mess-kit wash water occurred three times a day as long as the organization remained intact.

The exact route, or routes, of travel of the infection from the mouth of the infected to the wash water and thence to the mouth of the non-infected was a question difficult of determination, but the following observation led us to the decision that among troops the most likely route of travel from the wash water to the mouth was by the hand—in washing their mess-kits men almost invariably used their hands as mops. This procedure resulted in hand contamination and as the soldier's hands frequently visit his mouth—the soldier and civilian are alike in this respect—infection took place with great facility by the hand route of travel. The distribution of influenza among troops using mess-kits is, then, by *indirect* contact and chiefly by the hand to mouth route of travel. The contaminated hand then, is the major route of travel at the mess, while there is also a minor route of travel from the contaminated wash water to the mouth through the contamination of the mess-gear itself.

* Lynch and Cumming: The Rôle of the Hand in the Distribution of Influenza Virus and the Secondary Invaders. *Military Surgeon*, December, 1918.

† Lynch and Cumming: The Distribution of Influenza by Indirect Contact—Hands and Eating Utensils. AM. JOURN. PUB. HEALTH, January, 1919.

In addition to the two foregoing routes of transmission peculiar to the customary method of washing mess-kits, the soldier is as exposed as is the civilian to distribution of the virus through the handling of sputum contaminated inanimate objects.

The contaminated hand was wholly responsible for infection by the major route, while by the minor routes the hand and the mess-kits were the chief offenders. Distribution by direct contact or droplet infection is subsidiary to the above indirect methods of spread.

Distribution in Civil Communities.

Let us compare briefly the modes of spread of the sputum borne infection in civil life to those in the Army. There is common dishwater in the home but for the most part this is for small groups of individuals. Furthermore, in these groups the hands of only one individual become contaminated with organisms common to dishwater. In civil life then, the hand as a conveyor of organisms arising from contaminated dishwater is eliminated as a major mode of transmission. As a rule dishwater is used at a higher temperature in the home than it was in the Army; it is used more liberally and does not reach the high bacterial count common to mess-kit wash water. It is not believed that the major mode of distribution in civil life is by the hand, except in the case of children's diseases, and among children living in different families, but it is maintained that it is through the promiscuous use of common eating utensils; while the minor route is through hand to mouth by the touch route of sputum smeared inanimate objects.

Food Borne Transmission.

It, is, of course, recognized that certain sputum borne diseases are often food borne. In this connection it may be said that the influenza incidence in certain groups of our studies presented an epidemiologic character which pointed strongly to the food borne hypothesis of transmission. The explosiveness of the epidemic in certain small groups, in which the sanitary conditions were such as to rule out all other explosive sources except food, would indicate that at times the infection may be spread by this route.

Transmission by Eating Utensils.

In an addendum to a former report it was pointed out that the incidence of influenza among those eating from hand washed dishes was six times greater than among those eating from machine washed dishes.*

This investigation, made in Chicago, covered 17,975 employees in department stores, first and second class hotels, and other eating places. Of these 14,850 ate from machine washed dishes, which were presumably disinfected by boiling water. In this group the rate of infection was 13 per 1,000; while in the other group, composed of 3,125 employees who used hand washed dishes—hand washing of dishes implies dishwater of a temperature sufficiently cool to be bearable to the hand—the rate was 85 per 1,000. It will be noted that 84 per cent of the cases in these two groups occurred among those eating from hand washed dishes. Attention is called to the fact that this survey was made December 12, 1918 at a time when the epidemic had not run its full course. Perhaps a later investigation would have shown a different ratio of cases in the two groups. But the fact remains that some striking factor influenced the incidence of the infection in the two groups. It was believed that this was due to the disinfection of dishes by boiling water when machine washed.

It may be added that a report is in preparation relative to 275,000 individuals

*Lynch and Cumming: The Distribution of Influenza by Indirect Contact—Hands and Eating Utensils. Am. Journ. Pub. Health, January, 1919.

resident in state and Federal institutions in every state in the Union. This investigation has confirmed the findings already reported by us relative to the transmission. The groups to be reported are so varying that unusual corroborative evidence in detail has been adduced which it is believed will be suggestive in preventing sputum borne diseases in institutions, private homes, and public eating places.

Laboratory Researches.

Had too much been assumed in the aforementioned theoretical explanation as to the exact modes of transmission, it is to be pointed out the ratio of cases between soldiers using mess-kits and those using tableware, as well as the ratio between groups of individuals using hand washed and those using machine washed dishes, stands out in striking contrast. It now is necessary, however, to prove or disprove by laboratory research the hypotheses relative to indirect contact transmission, which we have maintained.

In the following there is included a research outline, which was designed to cover the points necessary for this investigation. Its object is:

First: To gather experimental facts covering transmission of the sputum borne infections by both direct and indirect contact.

Second: To correlate these results and after considering them from the practical viewpoint, to determine the most common routes of travel in counter distinction to the minor routes, and the means whereby these routes, especially the major ones, may be blocked.

Laboratory Investigations on Direct and Indirect Transmission of the Sputum Borne Diseases.

A. Streptococcus Hemolyticus.

1. Determine presence or absence of streptococcus hemolyticus on: (a) hands, (b) inanimate object conveyors, (c) tableware, and (d) in tableware wash water.

2. Desiccation tests: Use tableware and other inanimate objects.

3. Can hands of streptococcus carrier be freed of this organism by thorough washing in: first, running water; second, a bowl of water?

4. Ascertain if streptococci can be isolated from mess-kit wash water. Determine number per cc.

5. Examine air and floor dust of streptococcus carrier wards.

B. Apply the aforementioned points when possible to pneumococcus, diphtheria, tubercle, meningococcus, streptococcus viridans, typhoid, and dysentery.

C. Fourteen points:

1. Identify specific organisms on hands and in mouth.

2. Estimate total number of organisms on hands by serial washing.

3. Estimate total number of organisms in mouth by serial washing.

4. Estimate total number of organisms expelled by coughing and by sneezing.on a sterile glove. Is there a difference between normal individuals and those who have chronic cough?

5. Estimate total organisms deposited on sterile glove when wiped across the lips or the nose.

6. Estimate total organisms on hands of patients with chronic cough and on those of normal individuals.

7. Ascertain if face mask acts as a filter for dry and for moist organisms.

8. Determine by spray and plate method how long organisms remain suspended in the air.

9. Identify pathogenic organisms on inanimate objects in wards,—including dental instruments and air and floor dust.

10. Estimate total organisms in dishwater of family and in that of restaurant.

11. Determine total number and pathogenicity of organisms on eating utensils after they are hand washed, and after they are machine washed.

12. Determine number of organisms on spoons after use, and after they are washed in the ordinary way.

13. Identify varieties of mouth organisms in streptococcus carriers. What percentage of total count in mess-kit wash water are mouth organisms.

14. Determine viability of pathogenic organisms on wood surface when transferred thereto from carriers.

The foregoing investigation was but recently undertaken. It is far from complete, but the results to date are given for the benefit of those who may wish to follow out similar investigations.

Streptococcus Hemolytious.

1. *a.* Of 340 hands of streptococci carriers, 37 per cent were positive for this organism.

b. Of 29 inanimate objects—table-top, bed-post, sheet, etc.—24 per cent were positive.

c. Of 23 sets of tableware 91 per cent were positive.

d. Of 17 specimens of tableware wash water 94 per cent were positive.

2. Exposure to desiccation—washed and unwashed tableware—streptococci still viable after six days.

3. Hands of a carrier were still positive after washing in soap and running water for seven minutes.

4. Of 29 specimens of mess-kit wash water 90 per cent were positive.

5. Of 4 specimens of air dust of 10 liters each from streptococcus wards none were positive.

6. Of 39 specimens of floor dust from streptococcus wards 75 per cent were positive.

Pneumococcus.

1. *a.* Of 40 hands of patients 15 per cent were positive.

b. Of 14 inanimate objects—table-top, door knobs—21 per cent were positive—type 1 and 4.

c. Of 9 sets of tableware 77 per cent were positive.

Diphtheria.

1. *a.* Of 95 hands of patients 6 per cent were positive.

b. Of 52 inanimate objects 2 per cent were positive.

c. Of 26 sets of tableware 2 per cent were positive.

d. Of 26 sets of tableware wash water none were positive.

Streptococcus Viridans.

1. *a.* Of hands of carriers 100 per cent were positive.

b. Of 15 inanimate objects 14 per cent were positive.

c. Of two sets of tableware 100 per cent were positive.

Tubercle Bacillus.

1. *a.* Of 78 hands of open cases 2 per cent were positive microscopically. Five guinea pigs have been inoculated with scrapings from hands, and five with droplets expelled on a sterile glove by coughing.

Fourteen Points.

1. Not done.

2. By serial washing of 23 pairs of hands for periods of 3 minutes in 5 basins of water, it is found during the first 3 minutes of washing each pair of hands yielded 23 million organisms; the second period 13 million; the third period 8 million; the fourth period 7 million; and the fifth period 3 million.

3. Of 27 specimens of mouth washings each yielded an average of 214 millions. After scrubbing for five minutes this number was reduced to 32 millions.

4. Of 74 specimens of washing from a glove, on which droplets had been expelled by coughing, it was found that an average of 1,666 organisms had been expelled with each act.

5. Of 12 trials in which a sterile glove was wiped across the lips, there was found that on each trial an average of 1,684, 546 organisms adhered to the glove.

6. Not done.

7. Not done.

8. By the spray and plate method it is found on three trials that during the first minute 78 per cent of the organisms fall through a distance of two feet, during the first three minutes 84 per cent and in eleven minutes 100 per cent.

9. Prevalence of pathogenic organisms on inanimate objects covered under "*b*," "*c*," and "*d*." On measles and scarlet fever wards floor dust positive for hemolytic streptococci in 50 per cent of the specimens, while 40 liters of air proved negative for this organism.

10. In 54 specimens of restaurant dishwater the counts per cc. average 4,000,000.

11. Of 11 dishes used by pneumonia patients pneumococcus type 4 was recovered from 73 per cent.

12. Of 12 sets of spoons it was found that by ordinary hand washing only 43 per cent of the organisms were removed.

13. Not done.

14. Not done.

No attempt is made at this time to draw conclusions from these results. A perusal of these findings will, however, make plain the facility with which transmission may occur by indirect contact, and indicates the remote possibility of infection by the ærial route.

New Orleans is getting nearer. Remember, October 27–30, 1919.

FOOD INSPECTION AND FOOD IN RELATION TO PUBLIC HEALTH.

G. Koehler, M. D.,
Assistant Commissioner of Health, Chicago, Ill.

Read before Food and Drugs Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

"Why should not cities solve their milk problems as they have those of water supply?" queries Dr. Koehler. From the vital statistics of a metropolis he asserts relations between food inspection and typhoid and between pasteurization and infant mortality. He considers accurate information on dietetics a necessary health measure.

IT is well that health officials should from time to time check up on the relative value of their various activities. This is especially true when a health department, with insufficient appropriations, is confronted with an urgent demand to expand its work along certain lines, the health-saving values of which have been proven and well defined.

The reason for considering the subject of "Food Inspection and Food in relation to Public Health" is not because there is any great difference of opinion among health officials in regard to these matters, but on account of the misapprehensions still existing in the popular mind.

Food Inspection.—The public still has great faith in all kinds of food inspection and is prone to look upon large condemnations of fruits, vegetables and the like as very effective public health work.

This state of public opinion had its origin in the time when the question of enacting a national pure food law was agitated for years prior to its passage by Congress. Then many extravagant statements were made in regard to the danger of impure foods, and much of the correct information promulgated was misinterpreted by the public. This led to the idea that all food adulterations were "dangerous to health." It is, however, gratifying to note that within recent years public opinion has been formulating more accurately on this subject.

In food inspection work a distinction should always be clearly made between food control as a means of insuring fair trade, food standards based on esthetic values and food inspection from a health conservation standpoint. The objects of the last two are often confused, especially by the general public, and as a result, health departments have not yet been able to confine their food inspection activities to purely disease preventive channels. Chapin* has called attention to the proper value of food inspection in the general program of health conservation work. He gives relative values to various phases of food inspection in his scale of 1,000 points, as follows:

Food:	Adulteration	0
	Sanitation	10
Milk:	Adulteration	3
	Sanitation	17

In commenting upon the value of food control from a health standpoint, he says: "The small value here assigned may arouse protest, but who will argue that the laboratory is not five times, or baby nurses eight times, or the direct control of contagious diseases ten times as important as food sanitation."

He questions the efficiency of the popular sanitation of markets and restau-

*Jour. A. M. A., Vol. 69, No. 2, p. 90.

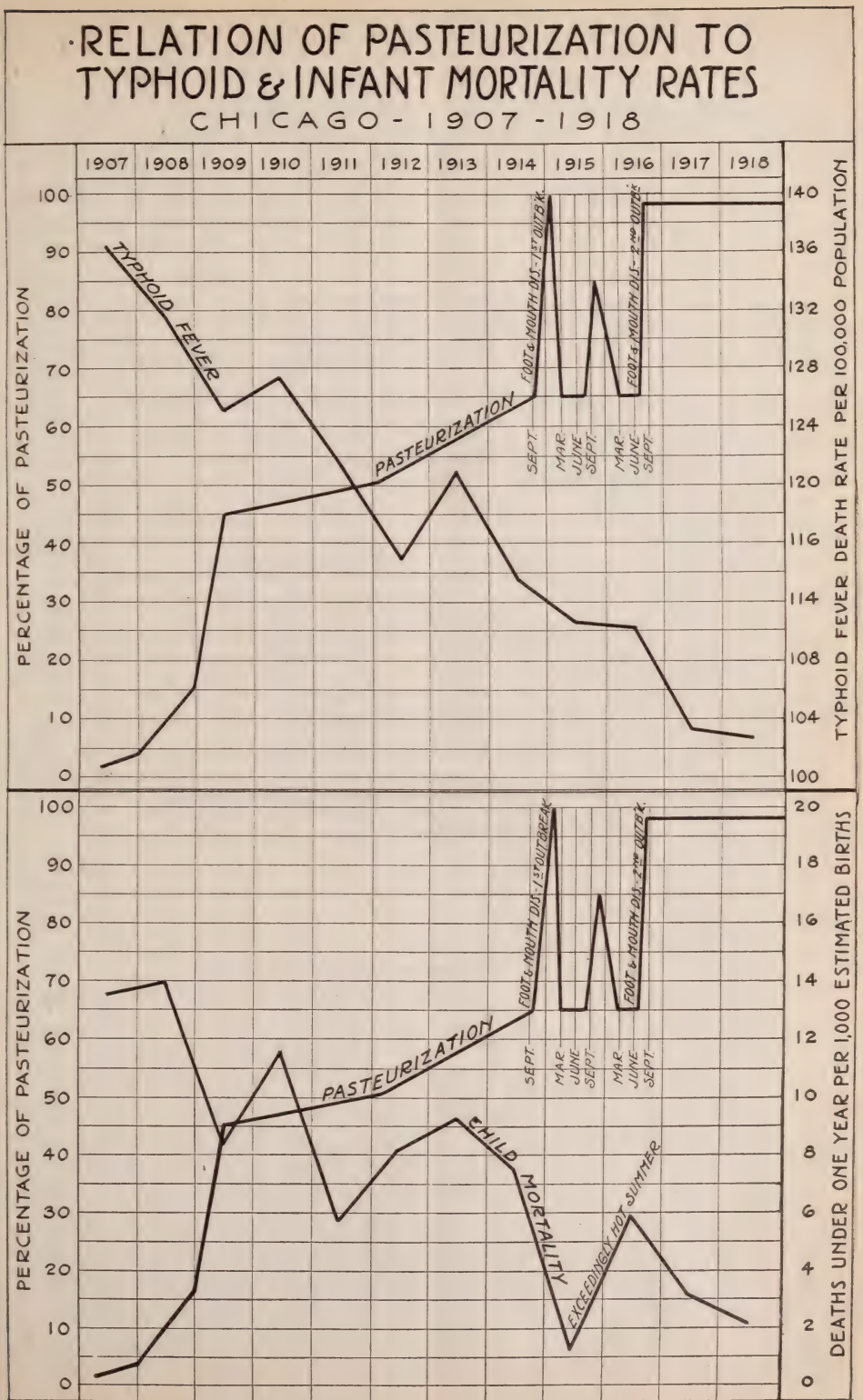
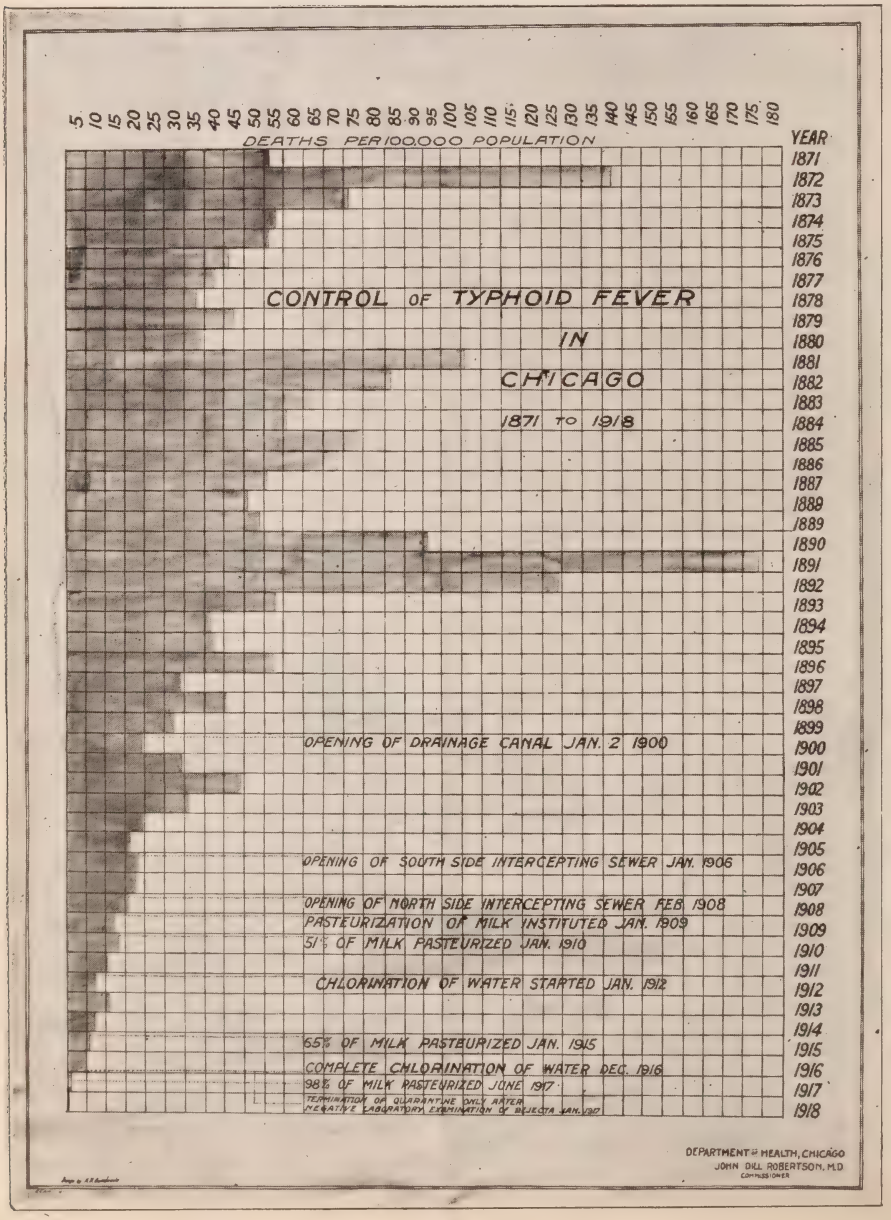

RELATION OF PASTEURIZATION TO TYPHOID & INFANT MORTALITY RATES
CHICAGO - 1907 - 1918
1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918
PERCENTAGE OF PASTEURIZATION
TYPHOID FEVER DEATH RATE PER 100,000 POPULATION
TYPHOID FEVER
PASTEURIZATION
FOOT & MOUTH DIS. 1ST OUTBREAK
FOOT & MOUTH DIS. 2ND OUTBREAK
SEPT.
MAR.
JUNE
SEPT.
MAR.
JUNE
SEPT.
PERCENTAGE OF PASTEURIZATION
DEATHS UNDER ONE YEAR PER 1,000 ESTIMATED BIRTHS
PASTEURIZATION
FOOT & MOUTH DIS. 1ST OUTBREAK
FOOT & MOUTH DIS. 2ND OUTBREAK
CHILD MORTALITY
EXCEEDINGLY HOT SUMMER

CHART I.

rants, and says that there is almost as much nonsense about "ptomaine poisoning" as there is about food adulteration. Milk he considers apart from other foods, and pasteurization is relied upon to render it safe. He does not mention meat inspection. If this is meant to be included in his program then surely the value of 1 per cent which he places on food sanitation is too low.

That well directed measures of food control, such as pasteurization of the milk supply, meat inspection at abattoirs, detection of disease carriers in food establishments, and sanitary measures tending to eliminate infection by human excreta,

CHART II.



including transmission by flies, are of value, is evident from the results obtained by the employment of these measures.

In Chicago there has been no milk-borne epidemic of contagious disease since July 22, 1916, when an order was issued requiring all milk to be pasteurized. The relation of the infant mortality and typhoid fever death rates in Chicago to the percentage of the milk supply pasteurized each year is shown on Chart I, on page 419.

It is not claimed that pasteurization is responsible for all of the lives saved, nor can it be shown that the supplying of a pure milk alone is solving, or ever will solve, the infant mortality problem. The other important sanitary measures, such as diversion of the sewage and chlorination of the water supply, are shown in their time relation to milk pasteurization and to the typhoid fever death-rate in Chicago, on Chart II, page 420.

While it is true that the chart does not indicate definitely the rôle which pasteurization played in the total reduction of the typhoid fever death-rate, nevertheless the records show that milk-borne epidemics, so common when the milk was supplied raw, have occurred with diminishing frequency as the rate of pasteurization progressed and have ceased to occur since the entire supply has been pasteurized under health department control.

During the last nine years the Chicago Health Department has kept records charging every case of typhoid fever, diphtheria and scarlet fever to the milk dealer supplying the patient just before the onset of the disease. These records are carefully watched and whenever the cases begin to accumulate for a given dealer or plant, special field investigations are made to determine the cause. A compilation of the various food-borne epidemics thus discovered has just been completed for the octennial report of the Department of Health,* covering the period from 1911 to date. A summary of these epidemics is given in Table I, page 422.

The eight years' survey covered by this report gives a good opportunity to note the importance of food inspection in relation to infectious disease in a community.

During this period the food inspection, especially the milk inspection, carried on by the Department of Health, was extended and well systematized. The number of food inspectors was increased from 66 in 1913 to 85 in 1916, since which time the number of inspectors has been slightly reduced. The milk supply of all cases of diphtheria and scarlet fever, and the milk and food supply of all cases of typhoid fever reported to the department during this time have been carefully ascertained by the field health officers. Whenever an unusual number of persons suffering from these diseases was found to have a common milk or other food supply, the source of such supply has been reported to the Bureau of Food Inspection and subjected to searching investigation.

Inasmuch as milk has been the most common source of these food-borne outbreaks, they should be considered in their relation to the percentage of the entire milk supply pasteurized during these various years, as shown on Chart I.

In the list of food-borne epidemics, Table I, there is only one of diphtheria, with 16 cases, and none of scarlet fever. This is worthy of note because a special watch was kept during the period covered for milk-borne outbreaks of these diseases. Whenever scarlet fever or diphtheria were unusually prevalent in the city or any section thereof, special investigations were always made to determine if such outbreaks bore any relation to the milk

*Octennial Report of the Chicago Health Department, 1911–18.

TABLE I.

MILK OR FOOD-BORNE EPIDEMICS IN CHICAGO—YEARS 1911–1918, INCLUSIVE.

Approximate Date of Occurrence	Disease	Transmitted By	Source of Food Infection	Number of Cases	Remarks
A. June–July, 1911	Typhoid	Milk	Carrier on dairy farm.	71	Girl on dairy farm had typhoid fever in June, 1910
B. Dec. 1911–Jan. 1912	Streptococcus sore throat.	Milk	Streptococcus sore throat at country plants and on dairy farms. Garget among cows.	Total unknown: 384 found in city by special survey.	Inefficient pasteurization and possible reinfection at country plants.
C. April–May, 1913	Typhoid	Milk	Milk driver.	11	Cases on route of one driver.
D. October, 1913	Typhoid	Restaurant	Carrier working in restaurant.	48	Carrier found had history of an illness beginning August 10, 1913, which resembled typhoid fever.
E. October–November, 1913	Typhoid	Milk	Driver delivering milk had a mild attack of typhoid fever while at work.	48	Driver was in habit of wiping milk bottles with a rag which he carried.
F. March, 1914	Typhoid	Milk	Indefinite.	6	Milk driver was sick.
G. March–April, 1914	Typhoid	Milk	Case of typhoid fever.	5	Employe in dairy found sick with typhoid fever. Onset 3/22/14. Widal positive.
H. June–July, 1914	Diphtheria	Milk	Case of diphtheria in home of milk dealer and diphtheria carriers in plant among help engaged in handling milk.	16	Owner had diphtheria. Two helpers gave positive cultures.
I. July, 1914	Typhoid	Milk	Dairy farm.	8	Child with typhoid fever found on farm.
J. July–August, 1914	Typhoid	Milk	Unknown—probably milk bottles	5	Customer living above depot gave a history of typhoid fever and a positive Widal. Dirty bottles returned to milk depot from this home.
K. September, 1914	Typhoid	Milk	Not found.	29	Thirteen had been out of town.
L. September–October, 1914	Typhoid	Milk	Bottles from home where typhoid fever existed.	9	Patient from whose home infected bottles came was sick some time before typhoid fever was diagnosed.
M. February–March, 1915	Typhoid	Milk	Indefinite.	29	May have been due to improper sterilizing of milk bottles, removed from home where typhoid fever existed.
N. March–April, 1915	Typhoid	Food	Carrier	5	This carrier found to have been the source of infection of a number of isolated cases previous to this time.
O. October, 1916	Typhoid	Salad	Not discovered.	15	Of the fifteen cases 14 were girls and one a boy. Only diet in common, eaten by all fifteen, was a salad.

or food supply and only in one instance was such relationship definitely established.

No case of human infection with foot and mouth disease occurred in Chicago during the widespread epidemic of foot and mouth disease in this vicinity in the years 1914 and 1915. Only a few isolated cases of trichinosis have been reported during the last eight years.

The number of cases of food or ptomaine poisoning reported to the Health Department was comparatively small and not a single extensive outbreak was noted. These diseases were added to the list of reportable diseases on January 11, 1917. The observation of Jordan* that a large measure of uncertainty still exists in regard to the real source of cases of alleged food poisoning has been confirmed in the work of the Health Department.

*Jordan: Food Poisoning, 1917.

Rather than review the observations and theories in regard to the transmission of tuberculosis by milk and food, and the cause and effects of the deficiency of vitamins, and similar vital principles in foods, the relation of food to public health will be considered briefly.

Economic Considerations.—That food has an important bearing on health and vitality has been brought to our attention forcibly during the war. In this country the effect on public health resulting from the high cost of an essential article of food became a matter of concern when the price of milk was sharply advanced a little over a year ago. On October 1, 1917, the price was raised from 10 cents to 13 cents per quart in Chicago and immediately there resulted a marked reduction in consumption. Many families with small children substituted condensed milk for fresh milk. A survey made at that time showed reduced milk consumption in families with children residing in the more congested parts of the city, as follows:

MILK INVESTIGATION OF FAMILIES HAVING CHILDREN UNDER SIX YEARS—AMOUNT OF MILK USED BEFORE AND AFTER OCTOBER 1, 1917.

		Pints
1. Families investigated	215	
2. Total number of children	503	
Average number of children in family	2 to 3	
3. Children under six years	385	
4. Cut down on amount of milk—total families	105	
5. Amount cut down		167
Average amount cut down by each family		¾
6. Families having children under 6 years of age cutting down on supply of milk	104	
7. Amount cut down by aforesaid		132
Average amount cut down per family		1.26
8. Substitutes employed:		
Nothing	7	
Tea and Coffee	74	
Condensed Milk	30	
Other	17	

Similar observations were made by the Health Department of New York City,* which in a survey covering 2,200 families made observations of reduced milk consumption as follows:

"The 2,200 families visited represented 12,439 individuals, of which 4,467 were adults, 2,534 were children from six to thirteen years old, and 5,438 were children under six years.

"The total amount of milk purchased by these families at the present time is 3,193 quarts daily; a year ago it was 4,797 quarts daily. This represents a decrease of 1,604. This decrease, to be sure, is slightly offset by an increased consumption of condensed milk, amounting, according to the survey, of 141 tins daily.

"Examining more closely the 1,480 families getting less milk than they did a year ago, we find over half of them (969) getting from 25 to 50 per cent less.

"Of the 120 families dropping milk entirely, 73 substituted canned condensed milk; 1,213 of the 1,480 families are substituting tea and coffee for milk.

"In the 2,200 families visited, 982 were encountered in which there were babies less than one year of age. Of these

"562 received less milk than in 1916;
316 received the same amount;
79 received more milk than in 1916;
25 dropped milk entirely."

In view of these facts it is evident that an excessive cost of milk is a matter of vital importance to the community. The public health is endangered when children and invalids are deprived of an adequate milk supply on account of prohibitive prices. This follows because the excessive price makes it practically impossible for the average wage-earner, with a family of three or four small children, to purchase the amount of milk necessary for their proper nourishment. Even if babies deprived of mothers' milk are allowed a sufficient quantity of cows' milk there is great danger of children between one and five years of age not securing sufficient quantities of milk necessary for their proper nourishment. A healthy child at these ages should consume about a quart of milk per day.

Furthermore, it is well known that milk is one of the essentials of the dietary of the sick and convalescent. This is especially true of persons afflicted with tuberculosis. When compelled to pay a high price for milk the average wage-earner is

*Weekly Bulletin of New York Health Department, Vol. 6, No. 44, Nov. 3, 1917.

left the choice of denying himself of this essential article of food or paying the price. In making this choice, oftentimes as a matter of necessity, the child or invalid will be denied the proper supply of milk.

Therefore, it seems proper that the departments of health should extend their control of the milk supply, which, heretofore, has consisted in efforts to conserve the purity and wholesomeness, to provisions for economic handling and distribution.

How this can be done is a matter that should be given careful consideration. Investigations made by numerous milk commissions within recent years of the various items of cost entering into the high price of milk paid by the consumer, have shown quite uniformly that these are due essentially to two factors, namely, the price paid to the producer and the great expense of city delivery. Over the former city health departments have no direct jurisdiction, but the latter is a proper subject for municipal regulation. Both might properly come under the control of state departments.

Under existing laws, if it can be established that the high cost of milk is detrimental to public health, and this can be readily shown, it should be possible to formulate the necessary ordinances regulating the manner of delivery so as to lessen the cost. Such measures would require the elimination of the principal cause of excessive cost in the existing system of delivery, namely the duplication of delivery service, by a system of coördination or consolidation. Williams* has pointed out the advantages of consolidation in the milk business as a whole.

In Chicago, where similar wasteful methods of delivery exist, the health department has proposed an ordinance to remedy these conditions. The main feature of the proposed ordinance is the licensing of milk dealers and milk stores to carry on the business indicated by their names, but which, under the proposed ordinance, would not have the right to engage in the delivery of milk. In addition, provision is made for the licensing of milk delivery companies operating in the entire city, or sections thereof, acting as common carriers, and delivering the products of all milk dealers in accordance with prescribed rules and regulations.

What has been said about the high price of milk to quite an extent also applies to certain other foods, the high retail price of which is largely dependent upon wasteful methods of marketing. This subject has been exhaustively studied within recent years by various official commissions which have almost unanimously found the high cost in part due to antiquated and wasteful methods of distribution.

The Massachusetts Commission on the Cost of Living* said: "Manifestly the most wasteful part of our economic system is that concerned with distribution."

The Chicago Municipal Markets Commission† concluded that "the solving of Chicago's market problem involves the elimination of costly, wasteful, cumbersome and antiquated methods."

Nourse,‡ in a comprehensive study of the Chicago Produce Market, emphasizes the burden of expense which is due to "poor location involving, as it does, high rents and costly hauling," inadequate equipment for handling goods and a slow and, therefore, costly method of selling.

How these conditions reflect upon the producers he sums up by the significant statement, viz: "What use is there in

*Williams Trans. 15. Internat. Cong. of Hygiene and Demography, Vol. 5, p. 128.

*Report of Massachusetts Commission on Cost of Living, 1910, p. 315.

†Preliminary Report of the Chicago Municipal Markets Commission, p. 11.

‡Nourse: The Chicago Produce Market, 1918.

producing foods in greater and greater abundance if there is no adequate system for distributing them to consumers?"

This whole problem is accentuated by the relinquishing by the U. S. Government of its emergency system of food control.

The local conditions, chiefly the cause for the costly methods of distribution, largely remain unsolved. These will help to maintain high prices and, as a result, the poor, including many afflicted with tuberculosis, will suffer from undernourishment.

It is more than likely that the fall in food prices expected after the war will be accompanied by a corresponding reduction in wage earning capacity, thus leaving the problem of high cost of essential foods relatively on the same basis.

In view of these facts, the problem of establishing more efficient and economical methods of marketing and distributing foods is a matter tending to conserve the public health.

Dietetic Questions.—Aside from the ill effects of insufficient quantities of foods upon health, there is the danger from overeating or improper balancing of rations. This is a matter deserving of greater consideration by health officials. It is to be deplored that more attention is not paid to proper guidance and control along these lines.

Cabot* has called attention to the fact that our efforts to prevent contagious diseases have nearly yielded their maximum results and that if further progress is to be made henceforth, attention must be given to the class of degenerative diseases, the death-rates from which are so markedly on the increase everywhere. If this task is to be done (and it should be) consideration must be given to the elimination of causes, which has been the method followed in contagious disease control. Diet, improper and not adapted to the digestive and eliminative capacities of the individual, doubtless plays an important rôle in the causation and progress of these diseases. Manifestly, the plan of attack is by educational propaganda. What is being done along these lines? Look at the popular bulletins of the various health departments for articles, aside from the occasional reference to pure milk for babies and cautions against overeating in holiday seasons, throwing light on these subjects.

There is a dearth of articles on dietetics and dietetic guidance in these publications aside from those treating of such stereotyped subjects as those enumerated above.

There should be a column of "Table Talk" in all popular health department bulletins. Pamphlets covering the subject in an accurate manner should be available and no effort should be lost to get such information in the public press when opportunity affords.

In these articles statements of generalities should give way to a setting forth of a few sound elementary principles. A "healthgram" such as "Chew Your Food, Your Stomach Has No Teeth" which was so successfully promulgated by the Chicago Health Department a few years ago, has more value than whole pages of generalities not founded on facts.

Conclusions.

The conclusions are only in part drawn from data set forth in this article. To avoid repetition, the more commonplace facts have been assumed or briefly summarized in the following conclusions:

1. The relation of food inspection to public health is shown best in the reduction of the frequency and extent of milk-borne outbreaks of typhoid fever, scarlet fever and diphtheria after the efficient pasteurization of the milk supply.

2. Similarly, it can be quite conclu-

* *Am. Magazine*, Vol. 82, Nov., 1916, p. 15.

sively shown that milk pasteurization is in part responsible for lowering the infant mortality rates.

3. The infection of foods by excreta and carriers of contagious disease is an important public health problem and one that has not been solved by the routine sanitary inspection of food establishments.

4. It is difficult to determine the exact health conservation value of many of the phases of food inspection other than those enumerated above. Apparently much of this work has no demonstrable effect on public health and is carried on for esthetic reasons. For example, the inspection of natural ice. Here the danger of transmitting disease from pollution at the source of production is practically nil when the ice comes to market after a period of storage for about three months, yet such sewage-laden ice, even though harmless, is absolutely undesirable. Much less can be said in favor of certain other lines of inspection, such as the condemnation of rotten fruits and vegetables. Here the people, unless blind, have the means of protecting themselves against the unhealthful effects, but not against bad bargains.

5. Food conservation and measures helping to lower the cost of food to the consumer belong in the general program of health conservation. The danger to health resulting from the high cost of milk is so obvious that health officers are justified in taking immediate steps to insure their cities an ample supply at the lowest possible cost consistent with the economic factors underlying production and the maintenance of sanitary standards. Cities have solved their water supply and other public service problems. Why should not the milk supply question be solved in the same manner? The solving of this question will necessarily lead to the formulation of principles and definition of legal powers which can then be applied to the solution of other economic problems of food supply and distribution.

6. Accurate and reliable information should be given to the public in regard to dietetics. Proper quantities and proportions of food stuffs, especially in the diet of infants and children, are as important as a wholesome supply and, therefore, instruction along these lines is a necessary public health measure.



Mouth Hygiene.—The relationship between a clean mouth and good health is a well established fact. It was only after many serious systemic disturbances were traced to diseased teeth, that the importance of oral hygiene became recognized. Dental caries is the result of the acid formed from the fermentation of food that remains between the teeth. The acid causes the formation of a starting point for a cavity. The cavity grows in size as a result of further fermentations, and serves for a pocket for all kinds of germs. Eventually the dental pulp is attacked, causing severe pain, resulting as a rule in an abscess.

Dental caries can be avoided by practicing several simple rules. It is important to masticate the food thoroughly. The mastication gives the teeth the necessary exercise, and in addition serves to clean them. The other rules for the care of the teeth consist in the correct and frequent use of a properly shaped tooth brush, and the use of silk floss. The teeth should be cleaned after each meal and also before retiring at night. If silk floss is not available, ordinary white cotton will serve the same purpose.—Edwin K. Kent, D. M. D., *The Commonhealth*, Feb., 1919. (*M. P. H.*)



Fly Poisons.—The authors describe extensive research on ways and means to abate the fly nuisance. The practical conclusions are that castor oil and arsenic are the best fly killers. Castor oil containing a little sugar attracts the flies, and they die in and around it. Its action is enhanced by adding 20 drops of croton oil to 30 gm. of the castor oil. The fly dies almost instantly, while the oil is not dangerous for man. The odor of sugar and the odor of decomposing milk, flesh, or blood, seem to attract flies most powerfully.—G. Boyé and R. Guyot.—*Bulletin de l'Académie de Médecine*, 81, Jan. 21, 1919, *Jour. A. M. A.*, 72, 900 (1919). (*D. G.*)

RELATIVE VALUE OF CULTURAL AND INOCULATION TESTS FOR DETECTION OF *B. TETANI.*

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AND
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Read before Laboratory Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

These authors call attention to the fact that the "safety test" used in the detection of *B. tetani* is not quite so "safe" as the cultural test.

IN THE testing of vaccine virus for the detection of the presence of the tetanus organism it is customary to use cultural tests and at the same time to inoculate a guinea pig subcutaneously with a quantity of the virus without preliminary cultivation. The latter is usually spoken of as the "safety test."

In connection with attempts to standardize the testing of vaccine virus we have conducted a number of experiments to determine the relative value of the two methods of testing and wish to record here the results of the observations.

Francis* found that tetanus spores in pure cultures, when injected subcutaneously into guinea pigs, did not give rise to tetanus symptoms, but that the spores could be activated by staphylococci or quinine injected later at the former site of inoculation, or injected at the same time in another part of the body. It might be expected that vaccine virus, which is often contaminated with staphylococci, especially before it has been glycerinated for a sufficient length of time, would stimulate to growth tetanus spores if such were present, with the production of toxin and consequent manifestation of tetanus symptoms in the animals.

Our tests have been carried out to determine whether this occurs as frequently as the production of toxin in plain broth media, equal amounts of vaccine virus contaminated with approximately the same number of spores being used in both the cultural and the animal tests.

Our purpose has been to use a small number of tetanus spores for artificially contaminating the virus with the idea of simulating natural conditions, *i. e.*, vaccine virus if contaminated at all with *B. tetani* would in all probability contain very few tetanus spores. This is known from experience. Tetanus following vaccination with vaccine virus is of very rare occurrence relative to the number of vaccinations and among the few cases on record, it has been difficult or impossible in most of them to establish the fact that infection occurred through the vaccine virus itself. It was also thought that more consistent and informing results would be obtained with a fairly definite and small amount of contamination than with indefinitely large doses.

In order to determine approximately the number of tetanus spores most favorable for artificially contaminating the vaccine virus, for the purpose of the tests, preliminary "titrations" were made by planting a series of plain broth fermentation tubes with varying amounts of the suspension of spores used. The highest dilution of the original suspension which gave constant growth in all of the tubes planted (usually five or six) was the one used, as a rule, in the tests. This was

* Hygienic Laboratory Bulletin No. 95.

varied in certain of the tests, dilutions above and below the most favorable being used also.

Our first experiment was performed by inoculating guinea pigs subcutaneously with suspensions of tetanus spores in dilutions of 1/100,000 to 1/1,000,000 mixed with vaccine virus, and at the same time seeding plain broth fermentation tubes with the same dose of the mixture of spores and vaccine. None of the six guinea pigs used in the test developed symptoms of tetanus during the ten days they were held under observation, while of the eighteen fermentation tubes inoculated with the mixture practically all showed the development of *B. tetani* as shown by the appearance of the growth in fermentation tubes and by the inoculation of mice.

A portion of virus contaminated with the tetanus spores was stored at 15° C. and also at 37° C., and tests made at the end of 7, 12 and 19 days' storage, using again the direct inoculations and the cultural tests, and in every case the former failed while practically all of the latter showed the presence of tetanus toxin. This test demonstrated that storage under the conditions mentioned did not lead to the development of toxin or such multiplication of the tetanus organisms as to make it possible to detect them by direct inoculations.

Further tests to determine the relative sensitiveness of the two methods were made, in which suspensions containing lower dilutions of tetanus spores as well as the high dilutions used before were mixed with vaccine and the mixtures used for both direct inoculation and cultural tests. The results are shown in the following table:

Dilution of Tetanus Spores Mixed with Vaccine Virus (1 cc. of Mixture Used for Inoculations and Cultural Tests)	Guinea Pigs Direct Inoculation	Guinea Pigs or Mice Inoculated from Cultures Incubated 10 Days
$\frac{1}{1{,}000{,}000}$ cc.	A. Remained well	G. P.—A. 0.001 cc. of culture; tetanus symptoms
	B. Died in 13 days, without symptoms	G. P.—B. 0.001 cc. of culture; tetanus symptoms
$\frac{1}{100{,}000}$ cc.	A. Remained well	G. P.—A. 0.001 cc. of cultures; tetanus symptoms
	B. Remained well	G. P.—B. 0.001 cc. of cultures; tetanus symptoms
$\frac{1}{10{,}000}$ cc.	A. Died in 3 days, without symptoms	G. P.—A. 0.001 cc. of cultures; tetanus symptoms
	B. Died in 6 days, without symptoms	G. P.—B. 0.001 cc. of cultures; tetanus symptoms
$\frac{1}{1{,}000}$ cc.	A. Tetanus symptoms	Mouse A. 0.1 cc. of cultures; tetanus symptoms
	B. Tetanus symptoms	Mouse B. 0.1 cc. of cultures; tetanus symptoms
Control, 1/1,000 cc. spores, without vaccine	A. Tetanus symptoms, 2 days	.....
	B. Died in 5 days, without symptoms	.....
Control, vaccine virus, 1 cc. without spores	Mouse A. Remained well	.....
	Mouse B. Remained well	.....

This experiment indicates that the cultural test followed by inoculation of animals will detect one one-hundredth the number of tetanus spores that is shown by direct animal inoculation without preliminary cultivation.

While it was felt that the above data were sufficient to justify an opinion that the so-called "safety test" was not so delicate or reliable as the cultural test followed by the inoculation of animals, it seemed desirable to secure a larger volume of evidence. Accordingly, arrangements were made with a manufacturer of vaccine virus to furnish a sample of about 30 cc. of glycerinated virus from each calf used for the production of virus. A portion of the material from each animal was contaminated with a quantity of tetanus spores large enough to be detected regularly by cultural methods as determined by the method described above. Two cubic centimeters of the mixture were used for the inoculation of each of five freshly steamed fermentation tubes of plain broth and the same quantity used to inoculate a guinea pig subcutaneously.

The results of the test are shown in the following table:

Vaccine No.	Results of Direct Inoculation of One Guinea Pig from Each Mixture without Previous Incubation in Culture Media	Results when Mixtures Were Subjected to Preliminary Cultivation and Later Injected into Mice						
		Fermentation Tube						
		1	2	3	4	5	pos.	neg.
1	Remained well	+	+	−	+	+	4	1
2	Remained well	+	+	+	+	−	4	1
3	Remained well	−	+	+	+	+	4	1
4	Died 5 days; symptoms not observed	+	−	+	+	+	4	1
5	Developed tetanus	+	+	−	−	+	3	2
6	Remained well	+	+	+	+	+	5	0
7	Died 48 hours; symptoms not observed	+	+	+	+	+	5	0
8	Remained well	+	+	+	+	+	5	0
9	Died 4 days; symptoms not observed	+	+	+	+	+	5	0
10	Remained well	+	+	+	+	+	5	0
11	Died 4 days; symptoms not observed	+	+	+	+	+	5	0
12	Remained well	+	+	+	+	−	4	1
13	Died 4 days; symptoms not observed	+	+	−	+	−	3	2
14	Died 4 days; symptoms not observed	+	+	+	+	+	5	0
15	Died 9 days; symptoms not observed	+	+	−	+	+	4	1
16	Remained well	+	+	+	+	+	5	0
17	Died 24 hours; no symptoms observed	+	+	+	+	+	5	0
18	Remained well	+	+	+	+	+	5	0
19	Died 4 days; symptoms not observed	+	+	+	+	+	5	0
20	Remained well	+	−	+	−	+	3	2
21	Remained well	+	−	−	−	+	2	3
22	Developed tetanus	+	+	+	+	+	5	0
23	Remained well	+	+	+	+	+	5	0
24	Developed tetanus	+	−	−	+	+	3	2
25	Remained well	−	−	−	+	+	2	3
26	Remained well	+	+	−	+	+	4	1
27	Remained well	+	+	+	+	−	4	1
28	Died 5 days; symptoms not observed	+	−	+	+	+	4	1
29	Remained well	+	+	−	+	+	4	1
30	Died 8 days; symptoms not observed	+	+	−	−	+	3	2
31	Remained well	+	−	−	−	+	2	3
32	Remained well	+	+	+	+	−	4	1
33	Remained well	−	+	−	+	−	2	3
34	Remained well	+	−	−	+	−	2	3
35	Remained well	+	−	−	+	−	2	3
							137	38

This table shows that in but three of the 35 samples was tetanus certainly detected by the direct animal inoculation, the so-called "safety test," while there was not a single failure to detect when cultivation in steamed plain broth tubes by the method used preceded the animal test.

In the case of fourteen of the mixtures subjected to preliminary cultivation all five tubes showed the presence of tetanus toxin as demonstrated by the mouse test, ten mixtures showed positive results in four out of five tubes, five mixtures in three out of five tubes, and six mixtures in two out of five tubes.

In these tests advantage has been taken of the fact that guinea pigs are more susceptible to the action of tetanus toxin than mice. Guinea pigs were used for the direct inoculation tests while mice were used as the test animal for the cultural tests. It is doubtful whether very many, if any more positive results would have been obtained if guinea pigs had been used for the cultural tests, but conditions were made as favorable as possible in the case of the direct inoculation test by using the more susceptible animal.

It is true that the results obtained in the above table are not altogether comparable since the fermentation tubes were planted with each of the vaccine mixtures and only one animal was subjected to the direct inoculation test. Obviously, the number of positive tests by the direct animal inoculation method might have been increased by using a larger number of guinea pigs for each vaccine, but, even conceding this, it is quite evident that the advantage is considerably in favor of the culture method.

Out of the 35 animals tested by direct inoculation

21 remained well (negative tetanus),
11 died without symptoms,
3 developed tetanus.

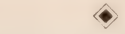
If five times the number of animals had been used, proportional results would have given

105 remaining well,
55 dying without symptoms,
15 developing tetanus.

Comparing these figures with those obtained with fermentation tubes (137 positive for tetanus, 38 negative for tetanus) it is apparent that the culture method gives a much higher proportion of positive tests.

Another decided advantage of the culture method lies in the fact that if indefinite symptoms are obtained on the first inoculation of animals, other animals may be tested with larger or smaller doses from the same culture tube, or control tests may be put on with antitoxin.

In view of the uncertainty of the direct inoculation test of animals it would seem necessary to inoculate a series of several animals, if this method is used, in order to arrive at any definite conclusion in regard to the possible contamination of the vaccine virus by tetanus spores, while by the culture method it may be possible to decide by inoculating one animal from a tube showing the characteristic appearance for tetanus growth. It is advisable, however, to inoculate from all tubes which may show gas in the closed arm, or growth even without gas.



HOSPITAL FOOD NEEDS.

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Read before Food and Drugs Section, American Public Health Association, at Chicago, Ill., December 9, 1918.

There are eight classes of men in the military hospital including attendants, and for each class there should be a different dietary. Major Hoskins explains this, tells clearly the common sources of waste of food, notes the amount, and suggests lines of conservation.

THE problem suggested in the caption of this paper presents itself in a somewhat different form in military than in civil hospitals. The chief difference lies in the fact that the military hospitals do not have to deal to any marked extent with several of the diseases which most tax the ingenuity and patience of dietitians in civil institutions because men developing such diseases are soon discharged on certificates of disability. Diabetes mellitus and chronic interstitial nephritis, for example, are seldom seen. Also, the proportion of men practically well and merely waiting for discharge from the hospital is unusually high; this includes surgical and other convalescents who, in civil life, would be sent to their homes but who are not yet ready for barracks life. In the overseas hospitals there is, of course, a high proportion of acute surgical cases, but this paper will consider conditions in the hospitals in this country only.

Another difference between civil and military hospitals which has a bearing upon nutritional problems is that in the latter a much more rigid discipline is feasible than in the former. Along with this is a grim determination upon the part of nearly all the patients to bear without complaint whatever Fate sends. Accordingly a high degree of arbitrary control is feasible.

Still another difference lies in the attitude of military and civil hospital authorities toward the patients. A civil hospital is frequently solicitous that life in the institution be made as pleasant as possible for reasons somewhat apart from therapeusis. In military hospitals, on the other hand, such solicitude is neither desired nor desirable. The chief desideratum is to get the patient out of the hospital and back to work as soon as possible. Any attitude of making the hospital a haven of peace and rest would be, from a military point of view, indefensible. On the other hand, it goes without saying, that no violation of humanitarian principles would be justified. This would be likely, in fact, by retarding convalescence, to violate the principle just mentioned.

With these modifying conditions in mind anyone familiar with the food needs of similar institutions outside the Army, could practically deduce his own answer to the problem of military hospital food needs. These needs are in general much the same as those of any institution feeding large numbers of men, namely, a variety of the ordinary foodstuffs in adequate quantity, plus a somewhat generous supply of fruits, eggs, fresh milk and cream and, possibly, lactose for forced feeding. This latter, as yet, however, is little used.

A statistical study of the consumption of various food materials in all the hospitals of the country is, for military and other reasons, not practicable, but a general quantitative idea of the matter

can be given. In Table I are listed the amounts of various standard foods consumed in one average base hospital during the period of a survey.

TABLE I.

Food Consumption in a Base Hospital.

	Consumption for one week. Lbs.	Pounds per man per day.
Bread	7,120	.273
Potatoes	5,544	.212
Beef	5,555	.212
Fish	613	.023
Milk (fresh)	9,483	.363
Milk (evaporated)	2,775	.106
Oranges	723	.028
Beans, dry navy	258	.010
Sugar	3,085	.118
Tomatoes (canned)	570	.022
Peaches (canned)	630	.024

Total number of different commodities used, 98.

In Table II are included data regarding food supplied to the individual patients in the base hospital above mentioned.

TABLE II.

The Food Supplied from the Kitchens to the Patients on Regular, Light and Liquid Diets.

	Grams.	Calories.	Calories, per cent.
Regular Diet:			
Protein	130.9	537.0	15.26
Fat	130.4	1,212.0	34.49
Carbohydrate	430.8	1,766.0	50.25
Total	692.1	3,515.0	100.00
Light Diet:			
Protein	70.8	290.0	12.43
Fat	56.7	527.0	22.57
Carbohydrate	370.1	1,518.0	65.00
Total	497.6	2,335.0	100.00
Liquid Diet:			
Protein	31.1	128.0	13.86
Fat	36.9	343.0	37.34
Carbohydrate	109.5	449.0	48.80
Total	177.5	920.0	100.00

By common consent the military hospitals are entitled to preferential treatment in the distribution of commodities. The difficult problems involved in feeding the individual patients are, therefore, not for the most part problems of supply but of preparation and distribution. It is with the latter that this paper will chiefly deal.

To understand what follows one should have in mind the general plan of organization of the base hospital mess. The final local authority in this as in all other matters resides, of course, in the commandant. Directly under him is the mess officer, usually either an experienced hotel manager, or a former army mess sergeant, commissioned in the Sanitary Corps. Associated with him, sometimes under his immediate direction and sometimes directly under the commandant, is the dietitian. She usually has one or more assistants. The dietitians are for the most part women who have had courses of training in domestic science but who often have had little or no previous training in hospital work. The mess officer has the assistance of several sergeants who deal with such matters as supplies, accounts, and kitchen and dining room management. Separate messes are typically maintained for sick officers, nurses, enlisted sick men, and hospital corps men. The segregation of these two latter classes, however, is often incomplete,—a fact which gives rise to the difficulties inherent in an attempt to feed normal men and patients from the same menus. For all these messes a corps of cooks, kitchen police and orderlies is provided. The officers' mess, proper, and the nurses' mess are usually quasi-independent institutions in which, however, the mess organization takes a benevolent and coöperating interest.

In theory, at any rate, dietetics is a branch of therapeutics and each soldier in a hospital should receive the particular diet best adapted to his case just as he should receive individualized therapeusis in other respects. Practically, however, conditions have not as yet permitted anything very closely approaching this ideal. It is true that occasional special diets are encountered, most frequently in gastro-enterologic wards, but for the

most part conventional "liquids," "lights," and "regulars" are provided for the men in large groups with, in some cases, "softs" interposed between the "liquids" and "lights," especially for the surgical convalescents. This is not an ideal state of affairs but under existing conditions is probably as satisfactory as can be hoped for. The problem then resolves itself into one of best utilizing this system to secure for each patient a diet as well suited as possible to his individual needs.

As to the liquid diets little need be said. They are ordinarily used for but a short period, and, from a nutritional point of view, often amount to little more than agreeable fluids. A certain amount of milk, however, although dietetically a solid, is included and this, together with sugar, does have a considerable food value.

Light diets come in for a greater degree of attention. In the larger hospitals the devising and preparing of these are largely in the hands of the dietitians. The word *light* in this connection, incidentally, is ambiguous; to some it has the connotation of *easily digested;* to others it means *low* in *caloric value.* It is usually interpreted by the dietitian as meaning both. Conditions would be more intelligently met if the requisitions from the various wards would specify the approximate number of calories desired and the distribution of these among the food components. In other words, the dietitian should be placed in a position closely analogous to that of the hospital pharmacist rather than made, as she actually often is, the senior consultant working under the handicap of never having seen or heard of the individual patient for whom she is prescribing. As a labor-saving device the light diet is often made up largely from the regular, and may be merely the latter with some one dish omitted. In such cases the "lights" are likely to have most of the deficiencies of the "regulars" which are, in fact, often devised by men with no technical training in dietetics, whatever. All sorts of menus have been seen under the caption "lights" from very attractive, well-balanced meals to mere impromptu bowls of corn flakes soaked in milk and served with second rate warm coffee. On the whole, however, the light diets are fairly satisfactory so far as in a plan of wholesale feeding they can be made satisfactory.

The least satisfactory of the various diets are the "regulars." These are commonly compiled by the mess officers or the mess sergeants who frequently have no adequate conception either of the technical problems involved or the proper methods of solving such problems. One of the most common sources of inadequacy is the custom in various hospitals of feeding hospital corps men,—guards, attendants, etc., the same meals as those served to the patients. The suggestive effect of the knowledge that the meals are to be consumed in part by normal men at work usually results in the planning and preparation of the meals in the interests of them rather than of the patients. One can most charitably ascribe to this cause the inclusion of such comestibles as corned beef and cabbage or pickled pigs' feet in menus intended for supposedly sick men.

In the hospitals in which the plan of feeding the corps men and patients the same meals is in vogue, one can differentiate at least eight classes of individuals. These are:

1. Normal men at fairly hard work requiring some 3,500 calories daily.

2. Ward attendants, normal men at sedentary work, requiring about 3,000 calories.

3. Ambulant patients, metabolically normal, requiring 2,600 calories.

4. Similar patients spending some time out of bed but confined to the wards, and requiring 2,200 calories.

5. Bed patients metabolically normal, requiring about 1,800 calories.

6. Sub-acute febrile patients (empyemas especially) needing high calorie and high protein feeding.

7. Other convalescent, patients of various sorts needing generous feeding but, from lack of appetite, eating sparingly.

8. Patients having constipation and needing an especially laxative régime.

The mere enumeration of these classes suffices to indicate the futility of attempting to feed them properly from a single menu. It seems to be felt that the food consumption of the first five classes will be sufficiently regulated by appetite. Actual observation, however, discloses relatively little difference between the consumption of the men needing 1,800 calories and those needing 3,500. These men have the habit of eating to repletion and the habit is generally persistent. This habit should be recognized as a common factor and meals planned accordingly. Although in one hospital a plan was being considered of dealing out to each man the definite quantity of food needed to furnish his quota of calories, it needs no prophet to foresee tribulation for all concerned in the plan. There is a strong tradition in the American Army that every soldier should at all times have all he wants to eat. The judicious method of meeting the conditions is to regulate the diets qualitatively rather than quantitatively. A proper distribution of "concentrates" and of "extenders," with particular attention to attractive meat substitutes and light vegetables and desserts, solves the problem. I believe that it can safely be stated that the highest food waste in the hospitals comes about from the over-use of concentrates. This may average 500 calories per man daily, and completely overshadow all efforts toward food conservation. It is an invisible waste that the conservation officer does not detect but is none the less real. In case of the sub-acute febrile patients, a special effort is often made to supply adequate feeding by the use of egg noggs, etc., between meals. This class of patients, together with the convalescents with poor appetites, should receive menus planned especially for attractiveness and high caloric content. As regards the last class, the constipated, more or less adaptation is frequently encountered in that fruits and fresh vegetables are utilized freely. More attention, however, could profitably be paid to the matter. It should be kept in mind that one of the most important drainage tubes which the surgeon has at his disposal is the colon.

In view of the fact that the expenditure for each patient is limited and that fruits and other necessary commodities are high in price, the matter of eliminating waste becomes an important element in the hospital food problems. The adequacy of control varies within wide limits. In one case, the writer observed 1,660 pounds of garbage—a 24-hours' accumulation—in a hospital feeding 823 men. In another hospital in which a survey was made by the Division of Food and Nutrition, Medical Department, the waste amounted to 1,893 pounds, or over a pound per man per day. As illustrating the effectiveness of the efforts of the survey parties, a paragraph from the official report may be quoted:

A summary is given below of the waste of edible food from the hospital kitchen, dining room, and wards. The figures include the waste from all of the diets which were studied and are grouped in averages of three-day periods:

	1st 3 days.	2d 3 days.	3d 3 days.	4th 3 days.	5th 3 days.	6th 3 days.	Last day.
Pounds of edible waste	1,693	1,009	1,025	618	497	477	437
Pounds of food saved	....	684	668	1,075	1,196	1,216	1,256

So much for high wastage. In another hospital in which a conservation officer was systematically utilized the edible

waste for the month of July, 1918, was held down to an average for the whole institution of .4 ounce per man per day, or less than 3 pounds per 100 men. The technique for effecting this low wastage is relatively simple. It consists merely in serving small initial helpings, with reservings to whatever extent is desired, and an enforcement of the "clean plate rule." If the cookery is reasonably good and the patient has the option of declining any given viand which he does not desire, he can properly be required to eat everything on his plate. This in itself does not sound like effective conservation, but the man himself can be trusted to supply the corollary—to take no more than he wants.

In addition to those discussed, there are various other difficulties involved in maintaining a satisfactory food supply to the individual patients. Finding, or better, training and keeping an adequate supply of cooks and mess sergeants has in some hospitals been a very trying problem. At times it is difficult to secure the nice adjustments demanded when a woman dietitian without military status, a mess officer previously a hotel manager, and an old army mess sergeant are required to coöperate in the same kitchen. The problem of conveying hot food from a kitchen to a ward a half mile away presents certain technical difficulties.

But time does not serve to go into a detailed discussion of such matters of technique. The major question is, of course, do the hospitals receive an adequate supply of commodities necessary to the proper feeding of the patients. To such a question the answer is, with few exceptions, in the affirmative.

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NORTH CAROLINA SCHOOL DENTAL CLINIC.



Under the system of free dental clinics in North Carolina, the children are assembled at the schoolhouse or other convenient place. This group was brought together at the Saratoga School, Wilson Co.

THE SCORING OF HEALTH ACTIVITIES IN CITIES OF NEW YORK STATE.

PAUL B. BROOKS, M. D.,
Acting Director, Division of Communicable Diseases, New York State Department of Health.

Read before Public Health Administration Section, American Public Health Association, at Chicago, Ill., December 9, 1918.

A helpful report of progress in an official New York State test. It shows defects in current practices, emphasizes the relationships of budget to results, notes the value of spot maps, and dwells on the importance of all public health education.

THE scoring of health activities in cities, as carried out in New York State during the past year, is in effect a survey. From it we have secured a fund of valuable information. The object in which we were chiefly interested, however, and which in large degree has been attained, was a stimulation of interest and activity on the part of the municipal officials, through calling attention directly to essential activities and stirring a friendly spirit of competition.

The plan was evolved and the original draft of a score form drawn by Dr. F. M. Meader, director, Division of Communicable Diseases of the New York State Department of Health. The preparation of the score sheet was completed and the scoring begun under the direction of the writer, acting in Dr. Meader's absence in military service.

No claim is made to perfection in the completed score form. The relative values ascribed to the various health activities have been established more or less arbitrarily and possibly will not stand scientific analysis. However, they represent what we believe to be the approximate relative values of the various kinds of activities to the cities of New York State.

Experience with the score has brought out a number of defects, some of which were anticipated and all of which we will endeavor to correct in revising the form.

The cities to which the score was designed to apply are 59 in number, classified according to population as follows:

Second class, population 50,000 to 175,000	7
Third class, 10,000 to 50,000	42
Third class, under 10,000	10

One of the most difficult of our problems was that of preparing a score adaptable to cities varying in population from less than 10,000 to 175,000. The fact that our average total scores are highest for the group of larger cities, and decrease in direct ratio with decrease in population, suggests that the score was not sufficiently flexible for use in both large and small cities. This will be discussed more in detail presently.

THE SCORE FORM.

The following are the general divisions of activity with the value assigned to each, the total perfect score being 1,000:

1. Communicable diseases.	
A. Tuberculosis	60
B. Other than tuberculosis	80
2. Laboratory facilities, local or state, fully utilized	80
3. School inspection	85
4. Infant and maternal welfare	90
5. Milk and food inspection	80
6. Water supply	90

7. Sewage, garbage and manure	80
8. Record keeping	90
9. Public health education	100
10. Appropriation	100
11. Enforcement of regulations regarding barber shops, common towels and eating and drinking utensils	20
12. Special work along new or unusual lines or especially efficient work or good results with old methods	35

Most of these general headings are subdivided and relative values assigned to each subdivision.

Scoring.

It was originally planned to have each of our 15 districts sanitary supervisors score the cities in his district. In view, however, of the obvious difficulty of securing a fair and comparable rating under such an arrangement we ultimately selected one supervisor, Dr. Chas. C. Duryee. to visit each city and make the scores. Dr. Duryee was peculiarly fitted for the work assigned to him. Not only is he a man of tact and good judgment, but he has been, at different times, health officer and mayor of a city of the second class, and as a member and one of the founders of the New York State Conference of Mayors, has a wide acquaintance among the mayors and other public officials.

The general plan has been for Dr. Duryee, in visiting a city for the purpose of scoring it, to take with him the supervisor of the district. In scoring, each detail was discussed with the local health officer, and the completed score was signed by them together. Wherever possible the score was then taken up in detail in conference with the mayor and other city officials, at times including the board of estimate and apportionment. Good work was commended and defects were pointed out.

Practically without exception the mayor and other officials evinced a decided interest in the various details, admitted and showed a desire to overcome shortcomings, and were anxious to know how their cities compared with others.

The Scores.

The following are averages of scores, on the basis of 1,000, for different groups of cities:

Population.	Average Score.
1. 175,000–50,000 (Second Class)	801.5
2. 50,000–20,000	750.
3. 20,000–10,000	622.2
4. Under 10,000	565.5

As already noted, the average total scores of the groups is highest for the group of cities of over 50,000 population, and grows progressively less with decline in population, the group of cities under 10,000 having the smallest scores. Between the average for the second class cities and that for the group with population from 20,000 to 50,000, the difference amounts to but 51 points. Between the average for the largest group and that for the smallest there is a difference of 236 points.

The scoring of the smaller cities with the larger was undertaken as an experiment. A detailed comparative study of scores of the larger and smaller cities for the various groups of activities, leads the writer to these conclusions:

The smaller cities lose a few points, possibly 30 through defects in the score form. Otherwise the scoring system is sufficiently flexible so that it could be "stretched to fit" the smaller as well as the larger cities, if it could reasonably be expected that the smaller cities would spend as much per capita for public health as the larger and maintain equal standards of excellence.

For instance the score of many cities of approximately 10,000 population suffers because they have no public health or school nurse; because of failure to provide for efficient control of communicable

diseases; because of failure to take advantage to the fullest extent of facilities offered by the state laboratory; because of failure to provide milk and food inspection; or to properly safeguard water supplies, etc. The score under the item "appropriation" shows that the group of cities of approximately 10,000 population or less averages about 25 cents per capita, as compared with 45 cents for the 3 largest third class cities and approximately 36 cents for the second class cities.

Inasmuch as the standards are not yet the same, we have concluded that it is not practicable to attempt to score all upon the same basis. The present scoring system, when its defects have been corrected, will be adapted for use in cities of over 20,000 population. The scoring of cities of less than 20,000 should continue but upon a modified basis. In the latter group, particularly, education should be more strongly emphasized.

We have frankly admitted to city officials that the scoring is an experiment, but there is now no question in our minds regarding its value. Because of defects discovered in the course of scoring, some of the scores may be open to criticism. Our present plan is to furnish mayors and health officers with a tabulated score of all cities—at least of those in their "population" groups, but to give no publicity for the present to the comparative scores.

Observations and Results.

Some of the following observations and comments, under various activity headings, may be of interest to those concerned in municipal health administration. They are made with the general reservation that some of them represent personal opinions of Dr. Duryee and of the writer.

Communicable Diseases.—There is a growing appreciation of the value of the services of public health nurses, enhanced by experience during the influenza epidemic. In small cities, under ordinary conditions, it is practicable for the nurse to divide her time between tuberculosis, general communicable disease control and child welfare work, the amount of time given to each depending upon season and local conditions. It might be well, in larger cities, to have nurses in various special lines of work exchange duties from time to time, both on account of the educational effect and because all will then be prepared for assignment to any of the various kinds of work in an emergency.

In many cities communicable diseases, especially the so-called "minor" diseases, are poorly reported. In only a few do heads of households report, when no physician is in attendance, as required by the state sanitary code.

While in most larger cities "quarantines" are established promptly and enforced more or less efficiently, in scarcely one was any efficient investigation made to determine and eliminate sources of infection.

Among smaller cities relatively few have any provision for hospital isolation and care of cases of communicable disease. A few still cling to their poorly equipped and rarely used "pest houses" for smallpox.

In few cities is there satisfactory coöperation between health and school officials in the control of communicable diseases. In some there is a definite antagonism, which seriously cripples efficiency.

Infant and Maternal Welfare Work.—Assuming a reasonably efficient health organization, work done by private organizations should be under the direction of the health department. It was founded that one city was appropriating several thousand dollars annually for the work of a private child welfare organization working independently. The health

administration knew little regarding its activities and had no control over them.

Milk and Food Inspection.—New York State some time ago adopted a system of dairy scoring in which increased credit is given to methods and less to equipment. This is particularly important at a time when production is low and prices high.

In most smaller cities dairies are inspected but once a year, and the scoring not effectively followed up to secure improvement in conditions. One full time inspector cannot properly supervise over 150 dairies.

Many cities have ordinances requiring protection of foods exposed for sale, but in few are they efficiently enforced.

Water Supply.—Fifteen points are added to the score if there are no auxilliary pipe lines (for temporary use) from sources open to pollution. Unprotected auxilliary supplies for fire purposes are frequently maintained, and their existence is usually a matter of common knowledge. In other instances, industrial plants maintain auxilliary pipe lines, connected with city supplies, guarded by more or less efficient systems of valves, and in more than one city no one except the city engineers and the management of the industrial plants knew of their existence. One comparatively recent typhoid fever outbreak was traced to the use of such an auxilliary line.

Disposal of Manure.—Many cities have regulations covering removal of stable manure. Most of them have overlooked the real object: the prevention of fly breeding, and the regulations are ineffective in so far as this is concerned.

Record Keeping.—Few cities have an adequate and sufficiently organized clerical force. This is especially true of the smaller cities, in many of which the health officer is obliged to do his own clerical work.

In the larger cities there is serious need of a uniform system of records.

Rarely, even in the larger cities, are spot maps or other graphic methods used to show distribution or prevalence of cases of communicable diseases.

Public Health Education.—There is a general lack of appreciation of the importance of educational work. Many health officers do not appreciate the importance of the newspaper as a medium for public health propaganda. Where newspaper publishers are willing and anxious to coöperate, and would make use of material sent to them regularly, these health officers fail to grasp the opportunity.

Appropriation.—Cities were visited in which it was practically impossible to determine what had been spent for public health work. Generally speaking the health administrations were doing the best work and receiving most nearly adequate support where good budgets are prepared annually. A committee of the New York State Conference of Mayors is now working upon a uniform budget system for second class cities.*

Most of the foregoing comments are in the nature of constructive criticisms, nevertheless, many cities are doing excellent work along various lines. As already noted health officers and other officials have welcomed the opportunity for discussion, have shown a keen interest in the score, and a desire to overcome defects to which attention has been called. In several instances concrete and important results have already accrued. It is the writer's hope to be able to arrange to have this initial scoring followed by periodical visits by an inspector to each city. So satisfactory has been the result that we are considering the feasibility of preparing a similar score adapted to towns and villages.

* Completed and published since date of writing.

WHY COUNTY HEALTH OFFICERS SHOULD BE APPOINTED.

PETER H. BRYCE, M. A., M. D.,
Chief Medical Officer, Department of Immigration and Colonization, Canada.

IN the very concise presentation of the "The future of the American Public Health Association" by our president, Dr. Frankel in the February JOURNAL there is a paragraph indicating that very soon we may see the Association sending field secretaries at the request of local health officers to visit their communities to assist in any health campaign under contemplation.

Very many things doubtless may be said and done to assist in such work; but there is nothing seemingly so much needed as some well-determined unit upon which to base public health work in each State. As pointed out in the tables attached to Dr. Frankel's paper the variation in the amount of time devoted to public health work and in the salaries paid to officials in cities of 75,000 population and over, indicates the need of further education of the public even in the larger cities; but the facts given in the monthly Bulletin of Dr. Hurty showing health conditions in rural schools in Indiana, based upon the results of a survey of one county, illustrate the actual conditions which are to be met with in every State and Province in North America and which demand the most carefully considered measures for grappling with the situation.

In the May number, 1910, of the JOURNAL of the Association will be found a paper which presents the main arguments in favor of county officers of health; while such examples as those above quoted bring us back today once more to our unsolved problem. Whatever value the splendid work of individual workers and missionaries in Public Health may have had, we today recognize that effectiveness can only be gained through organization. Obviously efficient organization demands that all the time and energies of an individual or a number of them be devoted to their task and it is further plain that adequate financial remuneration be given for the work done for the public. Today, everywhere, there is being voiced discontent at the way in which the public school teachers of America have been and are being paid, and when it becomes further generally recognized how public health work has been played with in the past—a year's work in a rural municipality often paid for at the rate of $25.00 to $100.00 per year,—the united voices of the more intelligent communities must soon demand that the potential man-power represented in the children of the community be protected and nurtured in some measure in keeping with its real practical value.

Dr. Frankel points out that the South Atlantic States stand first in the average rate of salary and in the number of all-time health officers; but the table does not give the population of the places reported upon in comparison with the total population of a state. The old distinction in the municipal organization of New England and Old Canada of many townships, villages and towns as compared with county areas in the South and West explains in some degree these differences in the salaries, and points directly to the way in which public health organization requires to be worked out for obtaining effective results.

Some ten years ago Massachusetts, the home of the "town meetin'," passed an act to provide for the establishment of

county health districts and the appointment of inspectors of health for each. Further legislation has been passed providing that in every area with 10,000 population a tuberculosis dispensary must be supplied. Indeed the passing of legislation for the organization of health districts large enough to utilize the all-time services of a qualified medical officer of health is the immediate means of coping with present public health needs.

While the population, area, and assessment must in some measure determine the extent of a health district, yet settlement everywhere in the United States and Canada is now well advanced and working areas for educational and legislative purposes have been generally worked out. Such would naturally be a county area over which presides an all-time inspector of public schools and such area may for the time be accepted as a convenient health unit. Especially is such organization demanded at present when the United States Public Health Service is coöperating so generally with the States in the expenditure of public health grants. This coördinated work demands some method whereby rural public health can be definitely developed. When Congress voted $4,000,000 for venereal disease work last year and when the Public Health Service is asking now for $26,000,000 for tuberculosis hospitals especially to care for soldiers, when the Lever bill is demanding that $1,500,000 be spent on rural sanitation in the United States, and further when an education appropriation, requiring ultimately many millions for the physical culture of school children, is being asked for it is apparent that some idea of the magnitude of the work to be done and of the expenditures required is being had both by the people and their legislators.

It is probable that a population of 25,000 to 30,000 will be found the most practical minimum area to be placed under the control of such an officer, who should have the qualification of D. P. H.; while his headquarters would naturally be at the county sanatorium or dispensary where would be his laboratory and the home centre of the health nurses of his district. From this centre by phone and motor his energies would reach speedily the borders of the district; while his laboratory should serve for the diagnosis not only of tuberculosis, diphtheria, syphilis and other communicable diseases, but also for diseased tissues which the medical men of the district would wish investigated. Indeed such work would become the centre for all the organized health activities affecting the vital and productive welfare of any district.

The medical officer of health, by virtue of his intimate acquaintance with each school community and industrial centre, would become in a special sense the advisor and director of his community, and if there were associated with him as a board of health, the county judge and the chairman of the county municipality there would thus be brought together such a combination of legal, medical and financial experience that the community would recognise they had a solid basis upon which to build the most progressive and yet conservative plans for the reconstruction socially and from the public health standpoint of a standard community of the 'New Future.' If to such medical officers be further added the functions of the State Examiner in legal cases, much of the discredit attaching to the old coroner system would be removed and justice as well as health would be strengthened by the statewide appointment of such officers.

SCHOOL HYGIENE A NATIONAL PROBLEM.

JAMES A. NYDEGGER, M. D.,
Surgeon, United States Public Health Service, Baltimore, Maryland.

Read before General Sessions, American Public Health Association, at Chicago, Ill., December 10, 1918.

"Rural schools are neglected and insanitary," is the motif of this essay. There are four times as many mental defecitves as in the city, while half the children have enlarged tonsils, etc. This author calls for reform here if as a nation we are to hold our place in the world.

UNTIL recently the greatest problem confronting us was to win the war. This having been accomplished, the settling of other big problems will necessarily follow.

Of the many problems that will require our attention, one will be the reorganization of our military forces on a peace basis, with probably the introduction of universal military training. The revelations made by the medical examining boards, since we entered the war, with reference to the number of physical defects found in our young men of military age, has been astonishing. Even those of us who have paid some attention to the physical condition of our young Americans, the large percentage of those found "unfit" has greatly exceeded our expectations.

This war has opened the nation's eyes to numerous defects in our system, but to none more amazing than the physical unfitness of our young manhood for military service. England woke up to this self-same calamity, that threatened the life of the nation at the time of the Boer War, and as soon as the war was over she proceeded to introduce in her schools a well devised system of medical inspection, physical training, and mild military exercises to correct, as far as possible, the physical defectives. Other European nations discovered this grave defect in their systems at an earlier date, and proceeded to set the medical inspection and athletic system of training in their schools to promote a better physical condition of their children.

The study of conditions revealed by the physical examinations in connection with the draft, has forced some to hold that serious racial degeneration must occur in the United States unless the whole country acts quickly and vigorously to build up the physique and take better care of the health of American children in youth.

In these examinations, it was found that 77.3 per cent of 278,537 applicants for enlistment during part of the period from 1914 to 1917, were rejected because of physical defects. According to the report of the Surgeon-General of the Navy for 1916, out of 106,392 applicants for admission to the Navy, all under 30 years, over 74,000 or 70 per cent were rejected as being physically unfit. Seventy per cent of the applicants for the Army in the year 1916 were rejected for like reasons. Sixty-six per cent of the 1,300,000 volunteers for the Army and Navy since the war began were rejected for the same reasons. It is claimed that 60 per cent of unfitness between 31 and 45 years, would be a conservative estimate if reasonable standards are maintained. Now, evidently something is wrong with the physical condition of our young men, the ten millions or so between the former draft age 21 to 30, upon whom we chiefly

depended for victory, in this war, since the examining physicians rejected one third of those examined in this class, because they found them unfit for military service. One third, which indicates that over 3,300,000 Americans in the prime of their young manhood were not found qualified to stand up against the enemies' soldiers in the struggle for world freedom. It is also claimed that at least 5,000,000 of our young men between 21 and 31 years are physically unfit for military service. A recruiting officer reported from a single station, that only 316 out of 11,012 men examined were found to be up to the required standard. The failure of 7 out of every 10 young Americans to measure up to the physical requirements for entrance into the Army and Navy emphasizes the fact that the nation should be awakened to the necessity of strengthening the health and physique of American school children and youths.

The close relation in which the public schools stand to national health, is all the more emphasized, when we realize that according to the last census there were 10,529,871 pupils in attendance at rural and city schools. Of these there were 794,000 more pupils from 6 to 9 years of age, and 376,000 more from 10 to 14 years of age in rural school attendance, than in the city schools, with no mention made of the number of pupils in attendance at rural schools from 16 to 18 years of age, in excess of those of the same ages in city schools. On this basis, it is estimated that from 65 per cent to 70 per cent of the school population today belongs to the rural schools. It is for this reason the country district schools are spoken of as the bulwark of the nation, and not that the country youth is stronger and healthier, or possessed of better physique than his city cousin as statistics will show.

To convince people that the city is more healthy than the country, which has been so long exploited, is no easy task, but we do know that the death-rate is falling more rapidly in the cities than in the country. On what ground are we able to explain this change? Simply on the ground of sanitation. In a word, while extensive provisions have been made for improving health conditions in cities, the country districts have been neglected almost to the present time. No more striking example of this neglect can be shown than to compare the average rural school with the city school of today. In cities the school buildings are as a rule well planned, and constructed and equipped and administered in accordance with approved measures; the children are largely subjected to medical inspection; they are provided with the attention of specialists; have gymnasiums; and physical training is undertaken, but how about the neglected rural schools? Certainly the children in the country districts are entitled to just as well lighted and heated buildings, to just as habitable modern and sanitary schools, to just as pure water, to just as good medical attention, and deserve as much health and happiness as the children in the city schools,

Time will not permit to contrast the unhygienic rural school with the excellent condition of the city school, but the neglected and insanitary condition of the country school is only too well known to many of us. Some of the unfortunate features of such schoolhouses are these: an unsuitable location at an extreme of the district, with unhygienic surroundings, shaded by trees, perhaps, damp and deprived of proper light. The school yard may be too small for proper exercise of the pupils, or perhaps with grades too steep for service. The outhouse, if present, may be insanitary, an abomination if not a danger. The water supply, from a shallow well or a near-by or perhaps distant spring, is unguarded against

pollution. The building itself is unclean, insanitary, dark, improperly heated, poorly ventilated, its equipment antique and unsuited to its uses, the outcome being deformity or permanent injury to the scholars. Here one may find the common drinking cup, the common towel, the common wash basin, and worst of all, at times teachers, who do not realize the harm of continuing their use.

While a part, and not all of the sanitary defects of the average rural school have been cited, I will add that these conditions, as they exist in the country schools today, have not been overdrawn.

Knowing these conditions to exist, it is then a matter of no wonder, that the country school child, who spends from 6 to 7 hours a day, from 8 to 11 years, during the most impressionable period of his life, in a school as has been described, is not blessed with as good health as the city bred child.

The recent medical examinations conducted by the Public Health Service and other agencies, of a large number of rural school children in many states have given us valuable data in this respect. The statistics collected by these surveys show that an amazing percentage of the children in the rural districts are defective and in the need of medical attention, and further show that the health of the country school child is from 5 to 20 per cent more defective than the city school child.

When we consider the existence of diseases in country and city children we find, notwithstanding all the advantages of fresh air and of out-door life, that 3.7 per cent of the total number of country children have tuberculosis of the lungs while the city children with lung trouble make up only a fraction of 1 per cent. Again we find that malnutrition, which is usually held to be more prevalent among city children, and afflicts the large number of 23 per cent of them, really exists in the country school children to the alarming extent of one-third of their total number. When we come to mental defectives we find an average of 8 per cent of the country children are afflicted, while only 2 per cent of city children are afflicted. Heart diseases are found more than twice as prevalent in country school children than in those of cities. Curvature of spine, due in great part to the use of faulty seats in rural schools, is 20 times more prevalent in country school children than city children. Ear troubles in country school children exceed by five times those occurring in city school children. City school children found to be suffering from defects of the eyes number 5 per cent while in the country school children 20 per cent are afflicted with these defects. Enlarged tonsils, which greatly affect the development, and physical fitness of the growing children, exist to the amazing extent of one-fifth of the country school children, while but one-twentieth of city school children are found to be afflicted. In some rural districts even 50 per cent of the children have been found to be suffering from enlarged tonsils. Adenoids, mostly associated with enlarged tonsils, exist in city children to the extent of 8 or 9 per cent, while in country children their occurrence is almost three times as great. From 20 to 25 per cent of country school children suffer from caries of teeth, markedly affecting the general health, while city school children number but 1 or 2 per cent. A number of acute diseases as malaria, hookworm, and trachoma, while found in city school children, occur much more frequently in rural school children.

In some of our rural districts 45 per cent of the school children have been found afflicted with trachoma, while hookworm and other intestinal parasites were found to afflict from 80 to 90 per cent of the children of some Southern rural schools.

The above figures merely illustrate some of the insanitary conditions and health handicaps under which the country child has to grow up, and these could be greatly extended if space permitted.

When we enumerate the customary health disadvantages of country life, compared to city life, one is inclined to wonder not that the average country child is less healthy, but that his condition is not worse than it is. He has the great benefit of pure air and the out-door life, but he is apt to live in houses which are draughty and unheated, to walk long distances in extreme heat, cold, or wet, and to sit in school with damp clothes and wet feet. His people are also less inclined to seek aid from physicians, dentists, and oculists, because they have not been educated to do so except in extreme cases.

A short period elapses from the time the country boy finishes school, at from 15 to 18 years, until he reaches the age for military service. All too short a time in which to develop so many of the defects in his physical make-up, for which he is rejected. Many of the defects developed in him before and during school age remain with him when he reaches the military age. In fact, we find the defective conditions which are the more prevalent in school age are the chief ones for which he is debarred from military service. It has been noted by observers, in other countries, in case of volunteers for military service, that rejections because of physical unfitness were in direct proportion to the number of years spent at school. Although it is not claimed that these observations hold true for all sections of the country, they do serve to draw attention to the fact that large numbers of individuals in the country have not obtained the highest individual efficiency, and that the schools are responsible in a great measure, for such lack of development. This is all the more evident when it is recalled that the greatest number of rejections for enlistment are on account of poor physical development, defective vision, and hearing, heart disease, defective teeth, underweight and underheight and postural defects. These defects are in a large measure preventable, or at least controllable, depending upon their prompt recognition in childhood, the period in which so many of them have their origin.

National welfare depends upon the health of the people. The future welfare of our country depends upon no factor more vital than the health of our rural life. Our finest crop is our children. The rural school is the strategic point from which rural life can be improved. The state should see to it that the rural school is used to the limit of its possibilities as a means of improving the health of rural school children. All studies of rural school conditions have revealed a special need of health supervision of rural school children: (1) because they constitute nearly 70 per cent of the total school enrollment of the country; (2) they are largely denied the medical attention of specialists, such as may be had in hospitals and clinics in cities; (3) they cannot be protected in mass by health laws as is the case in urban communities; and (4) they are more readily affected by epidemic diseases which diminish vital resistance and exercise an injurious influence on physical and mental development.

To obtain the very best results in improving the physique of our children when and where should we begin? We must begin at the beginning of life itself. We must teach our children and youths, and as far as possible our adult population, how to live right, how to keep the body and its organs healthy. We must teach sanitation in the homes and in the schools, personal hygiene, and the need of observing the common laws of health. The safety of the state and nation demands

that we actually stimulate them to apply this knowledge. At the same time we must fully realize that the introduction of any single innovation or procedure is not going to correct all of the physical defects existing in our young people. The process of raising the health standard of the nation must be a gradual one, beginning primarily with efficient universal medical inspection in our public schools, from the entrance age of six years onward, with the teaching of more and more thorough personal hygiene, the introduction of modern, hygienic and sanitary measures in the construction, equipment and administration of schools, coupled with a well devised system of compulsory physical training as a part of the curriculum, for the school children.

This, it seems to me, is in part a great national problem, and the Federal government should handle it as is done in the European countries. The government should coöperate with the states in seeing that the physical and mental defects in our school children are corrected, with the view of remedying the existing mediæval conditions in our rural schools today.

With the introduction of such a system in our schools, we should not lose sight of the fact that the proposed health guardianship to be productive of the highest good, should give close attention to parental, prenatal, and infant care up to school days, with closely coöperative home, school, state and Federal care up to the age of graduation.

In a paper presented at the Fourth International Congress on School Hygiene held in Buffalo, five years ago, the writer strongly urged the coöperation of the Federal government with state health and educational officials in establishing in rural districts, medical inspection of school children, model schoolhouses, with model equipment, and toilet rooms, with playgrounds and athletic fields adapted to the needs of the several communities, these to serve as standard types for other communities. Is there anything in our national life more important than improved school hygiene at this time? Is there anything that has been more lamentably neglected? Is there any better way of preparing our boys and girls for the stern civic and military duties that are before them than to give them sound bodies?

It is being urged as the sacred duty of every American doctor, in this critical period of the nation's life, to keep himself in fine physical condition. To fail in this is to fail in "patriotism." We must set the standard of physical fitness.

If the United States is to maintain its place among the nations of the world, its children must not only be endowed with strong, healthy bodies, but during the growing period their bodies must be supervised and trained so as to escape the diseases and deformities which are all too common among our people. In other words, our educational system must include as well as mental training, an efficient medical inspection, and a rational physical training which shall go beyond a few exercises indifferently done, and any medical supervision yet undertaken.

It seems almost superfluous to add, in connection with what has been said, that the field of school hygiene offers to this Association at this time unusual opportunities for valuable and lasting work; in fact a responsibility rests upon it in educating the public to see the necessity of reforms in school sanitation, and I believe it would be a wise plan to form a section on school hygiene at this meeting.

SIR ARTHUR NEWSHOLME OUTLINES RED CROSS POLICY.

SPEAKING at the Red Cross headquarters in Washington on May 2, Sir Arthur Newsholme endorsed the public health program undertaken jointly in this country by the American Red Cross and the United States Public Health Service. Sir Arthur, who until recently was chief medical officer of the English Government local board, is one of England's foremost health specialists. He was in the group of distinguished men assembled at Cannes by the five great world powers, to advise the committee of Red Cross societies in shaping the program that is to be presented before the congress of the Red Cross at Geneva. This is to be held in the Swiss city thirty days after peace shall have been declared.

With reference to the world-wide policy of the Red Cross, Sir Arthur spoke in part as follows:

It was a happy inspiration of Mr. Davison, the president of the American Red Cross, which led to his calling together the international conference of Red Cross societies at Cannes, with a view to considering means by which the worldwide activities of Red Cross workers might be utilized for the prevention of illness as well as for the treatment of sick and wounded mankind. It is a vision of the future, which, I think, will have a great influence on the welfare of mankind, if, as I am confident will be the case, the conception fires the souls of the multitude of Red Cross workers and contributors in every civilized country, and leads them to decide not to demobilize their forces, but to continue their beneficent activities against the horrors of peace, which, in the aggregate, are even more serious to mankind than those of war.

The statement that the devastation produced by disease in times of peace is even greater than the loss of life from war, may be illustrated by the experience of England and Wales. In the four years,, 1911–14, immediately preceding the World War, 2,036,466 persons died in England and Wales, while, according to official figures, the total loss of men, during the four and one-fourth years of war, was 835,743, including 161,800 presumed dead. The war figures the entire loss for the British Empire; but it cannot be far from the truth to state that war on the gigantic scale of the war from which we have just emerged has killed in Great Britain about one-third as many as have died in the civilian population in a corresponding period. I do not lose sight of the fact that a large proportion of the civilian deaths occur in ripe old age, and that 28 per cent of the total civilian deaths occur among children under five, while those destroyed by war are adults and the most virile of our race. But the greater part of the deaths in childhood, as well as in adult life, before old age is reached, are preventable; and in the future will be prevented, given adequate research, intelligent and unsparing application of knowledge already in our possession, and an avoidance of the public parsimony which, in relation to public health, constitutes the most serious form of extravagance. That is the ideal which Mr. Davison and his collaborators place before us; and it was to devise plans to this end to enlist the continued coöperation of all Red Cross workers that the conference was called at Cannes.

The conference held a number of general meetings in which the general policy to be pursued was discussed, and then divided itself into sections dealing with the following subjects: preventive medicine, child welfare, tuberculosis, malaria, venereal diseases, nursing, information and statistics.

The proposed organization of Red Cross agencies for preventive work has already received an imprimatur in the league of peace draft; and it would be appropriate that its headquarters should be near if not side by side with the future home of that league. If it receives the full development for which we hope it will form, perhaps, a chief instrument in securing peace and continued happiness for mankind.

The relation of the central bureau to National Red Cross societies will be one of mutual coöperation. The central bureau will provide information and facilities for national work; the actual work will need to be carried out in each country nationally and in the main from funds supplied by that country.

It is not intended that the National Red Cross shall undertake, much less compete with, work already being carried out either by local authorities or by existing voluntary groups. If, for instance, there is a society concerning itself with child-welfare, or the prevention of tuberculosis, or of venereal diseases, the National Red Cross would naturally give such assistance as it could through its voluntary workers in this special work, while leaving untouched existing arrangements. If no such societies existed the National Red Cross might advantageously assist in their formation, retiring as soon as the separate organization was working.

In countries in which official and existent voluntary agencies scarcely exist, more active work of the Red Cross organization will be called for; in such countries assistance may be needed from the Central international bureau.

EDITORIAL SECTION

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A MAY DAY CELEBRATION.

A May Day celebration, very different from those proceedings in which the red flag is the symbol, and different again from those that center about the English Queen of the May, was that of Danville, Va., a pageant and parade in the interests of better health. This is a happy combination of the fashionable pageant and the less fashionable public health instruction. It is a combination which harnesses the love of the dramatic, inherent in every one's heart, to the plow of public service.

Danville is not a great city, but it was able to attract four thousand, according to local statisticians, to take part in the exercises, while other thousands of citizens realized that something connected with public health was the reason for the festivities. To many it was undoubtedly the first time that the thought of public health had entered their minds. The procession brought together school children, white and negro, and grown-ups of all classes, and there were bright banners, mottoes presenting health principles, and floats, all of them factors to rivet the attention of the people and impress on them the fundamental truths of sanitation.

This Virginia city seems to have been fortunate in its program. It was one that called for the aid and attention of all kinds of citizens. There was a fairy play in the interests of baby betterment; there were serious addresses by health authorities; there was the presentation of prizes to school children for health essays, and the whole occasion was molded into a patriotic one by communal singing of the national anthems. Every civic factor was focussed on civic betterment, and these factors, board of trade, public schools, city departments, women's clubs, and the like, were active ones in the city's public and social life.

Such an occasion cannot fail to be a firm foundation for the coördination and coöperation of all civic forces to the communal good, and while this one was specifically directed

towards health, it must prove of greatest value in the other functions which a municipality must exercise. The health pageant, fitted as it is to the psychology of our people, can hardly fail to be a valuable tool in the hands of health administrators, if they realize its possibilities.

OHIO AND THE HUGHES BILL.

The second of two steps necessary to place Ohio in the forefront in state public health organization has just been taken in the Buckeye commonwealth. The passage of the Hughes health district act insures an adequate health department, administered by a full-time health commissioner, for every community in the state.

The progress, of which this law marks the second stage, began two years ago, when legislation was adopted to reorganize the state health department. By that act the old State Board of Health was abolished and a State Department of Health, headed by a single commissioner with an advisory Public Health Council, was established in its place. The internal organization of the department, built up to a condition of strength through a long period of years, was left unchanged in this reorganization. The operation of the new department began July 1, 1917, and Dr. Allen W. Freeman, formerly of the United States Public Health Service, assumed charge as state commissioner of health in October, 1917. With the exception of a few months in military service last year, Doctor Freeman has continued to administer the affairs of the department since that time.

The reorganization of the state health administration left, however, a weak point in Ohio's public health machinery—the highly inefficient condition of the local health system throughout the state. Under the plan which has prevailed in Ohio for years, each municipality and each township has constituted a separate health district, with its own administration. More than 2,100 independent health jurisdictions have thus existed in the state, subject to but slight control by state authority and almost wholly lacking in trained or even reasonably competent personnel. Many health officers have served for salaries of four or ten dollars a year, and the average remuneration in the townships is estimated to have been about twenty-five dollars a year. The part-time official has been universal, except in five of the cities—Cleveland, Cincinnati, Akron, Dayton and Springfield. The whole situation may be summed up by saying that Ohio's rural population—one-half of the total population of the state—has been without real public health protection, while the protection afforded in all but a few of the cities has been very slight.

A system of local health districts, each comprising a city of more than 25,000 population or a county area outside such cities, is set up by the new law. Each district is required to employ a full-time health commissioner, with at least one nurse and one clerk. A state subsidy up to a maximum of $2,000 per annum is provided for each district. Duties of the district health officials are defined in such a way that when the system is in full operation a comprehensive program of public health betterment will be in progress in every section of the state. The State Department of Health is given strong supervisory authority over local health officials, although in purely local matters these officials are given thorough independence. A staff of eight district supervisors, with the state divided among them, will be maintained by the State Department of Health if pending appropriations are passed. Each health district, in addition to the

health commissioner will have a five-member board of health, of which the commissioner, will be the administrative and executive agent. Firm financial support for the new machinery is assured by the fact that public health expenditures are made a second lien on the revenues of the townships and municipalities included in the district, following immediately after public debt charges in this regard.

Public health officials who have studied the Ohio health plan have been unanimous in its praise. In addition the legislation while pending had strong support from organizations representing labor, industry, agriculture, the medical profession, women's clubs and other influential groups.

Ohio's experience during the next few years will be watched with interest by the entire country, for nowhere have the theories which have come to be accepted as the basic principles of public health work received a more thorough testing out than they are to get in Ohio. VINTON E. MCVICKER.

NATIONAL EPIDEMIC DETECTOR.

Among recent plans for the betterment of the public health, there is hardly one which bears promise of greater value than that to be established by the United States Public Health Service for the detection of epidemics. This will require a government officer in each state to watch morbidity conditions and report them to Washington. It is an application to interstate health administration of the principle of the endemic index, which Massachusetts has been a pioneer state to develop. Such an index within a state relegates the great labor of recording of notifications to a clerical force. When, under the impulse of an incipient epidemic, the number equals the normal maximum of non-epidemic conditions, the fact becomes evident to the clerks, who notify the experts. By means of clock-faces, which have been figured in the JOURNAL, the indication of conditions demanding expert attention becomes practically automatic; in fact, could be made truly automatic, if it were deemed worth while.

The principles underlying the value of the index are plain and simple. It is the duty of the health officer to watch over the health of his people, and one of the foundation stones for his work is to have a knowledge of the health conditions and the variation in them, in his district. Until recently the health department has been obliged to work much like a fire department—wait until something happens that attracts public attention, and then, to the best of its ability, try to quell the outbreak. This has been the usual way of coping with epidemics—to rush to the scene as soon as possible after they are started, and by emergency methods put them down.

Little by little, preventive methods have been gaining ground, and morbidity reports have been more and more the guideposts to betterment in public health. Their value has consisted in giving notice of conditions in communicable disease that need attention. The possibilities that they present have been made the greater by a better understanding of normal conditions of disease in the community.

A few states have developed their systems of vital statistics and notification to a point where an endemic index is possible, and, once established, it may be the prophet of epidemic conditions before a real epidemic has developed. These results have proved the practicability of the use of morbidity figures, and the successes in different states underlie the broader work that is to be undertaken by the United States Public Health Society.

As far as the plan has been developed, there will be epidemiologists in fifteen of the states, who will take charge of interstate statistics of infectious disease. They will furnish to the service in Washington each week a morbidity statement. They will be able to establish endemic indexes for all the states and with this knowledge will be able to make a synchronous attack on epidemics. It needs no argument to demonstrate the value and practicability of this plan. It sets aside all local elements of uncertainty or delay, and by a great coördinated movement assembles the important truths where they may be studied, not in isolated groups, but as a related and consistent whole.

Aside from its immediate bearing on epidemics, the movement has potentialities for the awakening of those states of the Union which may be termed perhaps as "statistically asleep," while another influence that must have force lies in the possibilities of unifying the very discordant methods current in different localities for approaching the same health problem.

WHAT DISEASES SHOULD BE REPORTED.

Many health officers and even some physicians sometimes wonder what is the utility of reporting certain types of diseases. For example, in the case of measles one might say: "It is admitted that, in spite of every preventive measure at our disposal, the spread of measles will continue. What's the use of putting thousands of doctors and health officers to the trouble of reporting this disease?"

Granting that the spread of measles cannot be controlled—and even this is disputed by a few—reporting is nevertheless worth while, for this gives the opportunity of educating the family so that measures will be taken to prevent the development of pneumonia.

A clear understanding of the various reasons for reporting is so important to the health officer that perhaps the repetition of them here may be pardoned:

1. To prevent the spread of the disease by means of quarantine or isolation. This is the most important motive and applies in the case of most of the reportable diseases.

2. To secure statistical data as a basis of study. This applies especially to diseases which are not as yet fully understood, such as influenza.

3. To induce the patient to take proper treatment. This applies in the case of pneumonia and syphilis.

4. To urge proper after-care. With poliomyelitis, for example, it is very important that proper muscle training should be pursued in order to restore the use of muscles. The guarding against after-effects of measles has already been referred to.

5. To guard against confusion owing to mistaken diagnosis. For example, many health officers think that every case of chicken-pox should be investigated in order to differentiate it from smallpox. Similarly, German measles and scarlet fever are frequently confused.

Dr. C. V. Chapin of Providence properly points out, however, that reporting is not an end in itself. Where a health department is not prepared to make use of reports, it is not sensible nor fair to thus take the time of the physician. The ability to use reports should precede the demand for reporting.

In Memoriam.

Henry Mitchell.

By the death of Dr. Henry Mitchell, which occurred January 30, at Daytona, Fla., the medical profession of this country sustained a great loss. His home state, New Jersey, and the American Public Health Association in particular, must feel this loss most keenly; in the former he was a foremost health administrator, in the latter an interested member, an energetic worker, a good advisor and one who had been elected to the highest office within its gift.

Henry Mitchell was born in Norwich, N. Y., August 6, 1845. He was educated at the Catskill Academy and Phillips Exeter Academy. He was graduated at Bellevue Hospital Medical College, New York City, in 1866 and at once began practice in his home town. Two years later he entered the service of his country as surgeon in the 103d regiment, New York Volunteers, and at the conclusion of the war established himself in New Jersey, with the public health administration of which he kept in touch till his death. He was first in Jersey City, 1868, and eleven years later removed to Asbury Park, his home for the remainder of his life.

Engaged in active practice, he early recognized the necessity, especially in a resort to which thousands came each summer, of establishing an efficient board of health, and it is undoubtedly due largely to his efforts in this direction that Asbury Park owes its excellent reputation. His board, for he was made president of it, was progressive, and he himself became and remained the executive force in civic progress along all lines.

In 1894 he was named secretary of the New Jersey State Board of Health, in which capacity he served for fourteen years. Under his supervision the board made rapid progress. Through his efforts a bacteriological laboratory, the first state laboratory in the country, it is claimed, was established. At the twenty-eighth annual meeting of the American Public Health Association, held in Ottawa, Canada, in September, 1898, Dr. Mitchell was elected vice-president and in the following February, on account of the death of the president, Dr. George H. Rohé, he became president, delivering an address before the Association at its succeeding meeting at Minneapolis.

Some of the suggestions made by Dr. Mitchell on this occasion as being within the province of the state health governments, are of interest twenty years later, since they show how progressive he was in his ideas. He included in the necessary duties of central sanitary organization in each of the states,—vital statistics, sanitary supervision over public transportation service, investigation of local outbreaks of disease, investigation of sanitary condition of schoolhouses, investigations into sources of sickness and mortality, prevention of the spread of contagion among animals, prevention of the sale of contaminated milk, receiving and recording reports of communicable diseases, supervision over a state bacteriological laboratory and the detection of the practice of adulterating foods. One who can remember the condition of health administration a score of years ago will realize how far-reaching were these ideas, some of which have not yet been realized by all the states of the Union.

Honors began then to flow in upon Dr. Mitchell. He was made president of the New Jersey Sanitary Association, then in 1903 was elected president of the New Jersey Society of Medicine, remaining a fellow and a trustee thereafter, and in addition was president of the Hudson and Monmouth Counties Medical Board and

of the Chenango (N. Y.) County Medical Society.

Dr. Mitchell made Florida his winter home while still a young man and he returned to it for a certain period every year. The nervous condition due to worry over his son's illness which had a fatal termination was an important factor in his own taking off.

The editor of the *Medical Journal of New Jersey* reviews his noble character in these words: "A true Christian gentleman, an able practitioner, an expert sanitarian and a warm personal friend, who was well summed up in the five words—simplicity, sincerity, sweetness, strength and service."

CHARLES V. CRASTER, M.D., D.P.H.

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DANIEL LEWIS.

The daily newspapers record the death on March 22, at Alfred, N. Y., of Dr. Daniel Lewis. Born in Alfred in 1846, Dr. Lewis was a graduate of the local university in 1869 and received his M. D. from the College of Physicians and Surgeons, New York City, in 1871. His practice was built up in the metropolis which was his home for nearly fifty years. His public service began in 1895 when Governor Morton appointed him commissioner of the New York State Board of Health. He was at once elected president of the Board, and on its reorganization in 1900 he was appointed by Governor Roosevelt as the first commissioner of health under the new dispensation. In the field of publication, he was the founder and its editor for many years of the *Medical Review of Reviews*, and from his pen came many important contributions to medical literature. For a relief from this active life in medical fields he busied himself much with the affairs of Alfred University, was the president, during a number of years at intervals of its alumni association, and was the founder of the University Library, serving on the board of trustees for some thirty-five years. His service in public health was state-wide and national, while in his relationships to his *alma mater* "his wise counsel, his boundless optimism and his enthusiastic devotion, made of him an alumnus, friend and trustee, whose valuable aid is written large through a period of nearly half a century."

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PROGRAM OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

In the course of the efforts towards getting new members the good works of the Association have been reviewed by the secretary's office and have been crystallized into these thirteen items:

1. Publication of a technical health magazine (THE AMERICAN JOURNAL OF PUBLIC HEALTH.)

2. Publication of a monthly NEWS LETTER.

3. Preparation of standard forms and standardized literature for health officers.

4. Organization of state and local health associations.

5. Conducting an employment bureau.

6. Procuring legislation providing for full time local and state health officers.

7. Procuring adequate appropriations for health work.

8. Conducting an information bureau on health matters for members and others.

9. Coördination of national and state associations engaged in health activities.

10. Development of a better *esprit de corps* among health workers.

11. Studies and investigations leading to reduction in death-rates.

12. Meetings and conferences at which all organizations interested in better health may be represented.

13. Campaign of popular health education to reach every citizen in the community.

ASSOCIATION NEWS

HELP EMPLOYMENT BUREAU.

In order to help relieve the shortage of sanitarians due to the war, free help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Health Officer in Virginia. Salary, $3,300. Excellent opportunity for right man. Address L. C. E., No. 210, care of this JOURNAL.

City Physician for health department in Michigan. Salary $2,400. Address H. N. No. 211, care of this JOURNAL.

In Virginia, laboratory technician, salary $100 per month. Address R. W. G., No. 214, care of this JOURNAL.

Graduate nurses with public health training, for county work, specializing in prenatal and infant hygiene. Address K. B. V., No. 224, care of this JOURNAL.

Health Officer in Wisconsin, city of 21,000 population, 91 miles from Chicago. Salary $2,500. Address J. A. J., No. 224, care of this JOURNAL.

Health officer for the Portsmouth and Norfolk County Health District, which has been under supervision of the U. S. P. H. S. for past sixteen months. Population, 125,000. Sufficient personnel of inspectors and assistants. Must be an M.D. with some experience in P.H. work. Salary $3,000 with transportation while on duty. Chances for an increase. References required. If possible must be ready to take charge July 1 or shortly thereafter. Apply, Health Director, Portsmouth and Norfolk County Health District, Portsmouth, Va. F. T. F. No. 230.

A State Board of Health is in need of a trained epidemiologist who can also do vital statistics work. Write qualifications and experience to L. E. N., No. 242, care of this JOURNAL.

Recent legislation in Ohio creates a demand for approximately 110 whole-time health officers with permanent tenure of office under civil service. Salaries range from $2,000 to $6,000 per annum. For further details write to Dr. A. W. Freeman, State Commissioner of Health, Columbus, Ohio.

Competent bacteriologist to take charge and run the Lewisburg Laboratories, Inc., on a commission basis. Good building and good equipment, fine location. Good opportunity for the right man. State age and experience, give references, state whether married or single. Address Stuart & Watts, Lewisburg, W. Va.

CAMPAIGN NEWS.

May proves to be like February, a short month for business operations, for Decoration Day followed by Saturday cuts down the effective time to twenty-nine days. This lessens the record of new members, but nevertheless the total tally is 3,200, at the time when it is necessary to close the forms of the JOURNAL.

Although not quite achieving the desired goal, the campaign has brought it plainly into sight and has shown how with a little more effort, it will yet be attained. The campaign has been a wonderful stimulant to American Public Health Association members and has spread the fame of the Association. In almost every locality the praises of the Association have been sung by interested members, and there are only seven states of the Union from which new members have not been accredited. Some members whose sponsors have not yet been stated, may reduce this number. Some states have doubled their previous number of members; have really secured the "Member per Member." The figures will be presented later when it has been possible to assemble them all, and will be illustrated by charts in a novel study of member distribution and efficiency rating.

Some members have been intensely interested in increasing the membership of the Association. In the *News Letter* half a dozen of them were noted, who had secured ten members or more each. Three of the six have not been satisfied with what they had already accomplished, and have increased their scores, so that these now read, Dr. J. A. Kappelman, M. D., of the Illinois State Department of Health, 24; A. T. McCormack of the Kentucky State Department of Health, 15, and Mayo Tolman of the West Virginia State Health Department, 13. To these three men the Association is indebted for fifty new members, while a good many others have secured more than was asked of them, and in a later JOURNAL will be credited with what they have accomplished.

LIST OF NEW MEMBERS

PROPOSED FOR ELECTION TO THE

A. P. H. A.

The applications for membership in the American Public Health Association filed between the issue of the JOURNAL for May and May 20, when the *News Letter* went to press, were so numerous, that three pages of the latter could not present them all. The names that were crowded out of the *News Letter* are here given together with the other applications received up to May 29.

Sponsors	—and—	The New Members Whom They Introduced
(States arranged in alphabetical order)		
ALVIN W. KLEIN, M. D., Riverdale, New York, N. Y.		ALBERT E. AUSTIN, A. M., M. D., Sound Beach, Conn. Greenwich Dept. of Health.
WILLIAM J. ORCHARD, S. B., New York, N. Y.		M. F. TIERNAN, New York, N. Y. Manufacturer.
		MARY C. HURLBUT, M. D., Rosebank, N. Y.
CARL E. McCOMBS, M. D., New York City.		IRVING DEWEY WILLIAMS, A. M., M. D., New York City. Supt. of Towns Hospital.
		HUGH F. LORIMER, M. D., Ordway, Colo. Member Colo. State Bd. of Health.
		GERTRUDE R. BRISTOL, B. S., Foxboro, Mass. Student of Public Health.
		ANNA L. ABERCROMBIE, M. D., Baltimore, Md. State Bd. of Labor and Statistics.
		FRED W. EDELMANN, M. D., Saginaw, Mich. City Physician.
JAMES ALEX. MILLER, M. D., New York City.		FREDERIC E. SONDER, M. D., New York City. Head of Laboratory.
C. E. TERRY, M. D., New York City.		ANDREW G. DuMEX, M. S., Ph. D., Washington, D. C. Associate in Pharmacology.
WATSON S. RANKIN, M. D., Raleigh, N. C.		GEORGE WINSTON BOTTS, M. D., D. D. S., Nashville, N. C. County Health Officer.
A. McR. CROUCH, M. D., Raleigh, N. C.		PRESTON BROOKS LOFTIN, M. D., Beaufort, N. C.
RICHARD H. LEWIS, M. D., Raleigh, N. C.		FLETCHER R. HARRIS, M. D., Henderson, N. C. Board of Health
ENRIQUE E. ECKER, Ph. D., Cleveland, Ohio.		H. L. ROCKWOOD, M. D., Cleveland, Ohio.
		L. F. HUFFMAN, M. D., Lakewood, Ohio. Acting Asst. Surg., U. S. P. H. S., Venereal Disease Dept.
		GEO. E. WEBSTER, M. D., Cleveland, Ohio. In charge of Narcotic Bureau.
W. R. MORRISON, A. M., M. D., Cincinnati, Ohio.		PROF. HARRIS M. BENEDICT, Cincinnati, Ohio. Prof. of Botany, University of Cincinnati.
J. W. ELLMS, Lakewood, Ohio		ERNEST H. STRONG, Milwaukee, Wis. Bacteriologist.
GEO. D. MAKEPEACE, Cleveland, Ohio.		WILL J. KLEIN, M. D., Cleveland, Ohio.
MALCOLM D. MILLER, M. D., Akron, Ohio.		FRANK V. DUNDERMAN, M. D., Akron, Ohio. Akron Health Dept.
CHAS. T. NESBITT, M.D., Akron, Ohio.		A. B. PLOWMAN, Ph.D., Akron, Ohio. Prof. of Biology, Univ. of Akron, and Director Education, Akron Health Dept.
JOSEPH T. MARTIN, Oklahoma City, Okla.		ARTHUR R. LEWIS, M. D., Oklahoma City, Okla. State Health Commissioner.
		HARRY HOWARD CLOUDMAN, A. B., M. D., Oklahoma City, Okla. Medical Inspector of City Schools.
S. H. GILLILAND, M. D., Ambler, Penn.		W. L. DAY, Ambler, Penn. Biological Products.
RUTH WEST, M. S., Glenolden, Penn.		HERMAN BERNARD BACHERS, Glenolden, Penn. Bacteriologist, H. K. Mulford Co.
D. H. BERGEY, Philadelphia, Pa.		F. LIONEL MEREDITH, P. D., Hagerstown, Md. Organizing Private Health Laboratories.
SAM'L R. HAYTHORN, M. D., Pittsburgh, Pa.		JAMES CLARK BURT, Ph. B., M. D., Pittsburgh, Pa. Chief Genito-urinary Dispensary.
W. L. HOLMAN, M. D., Pittsburgh, Penn.		FREDERICK C. NARR, Pittsburgh, Pa. Passavant Hospital.
WILLIAM F. WELLS, M. D., Austin, Texas.		THEO. C. HILL, B. S., C. E., Erie, Penn. Civil Engineer.
W. A. BRUMFIELD, M. D., Richmond, Va.		FRANK G. LOUTHAN, Esq., Richmond, Va. Director Law Enforcement, State Bd. of Health.

AGNES RANDOLPH, Richmond, Va.

ENNINION G. WILLIAMS, M. D., Richmond, Va.

E. C. LEVY, M. D., Richmond, Va.

PROF. T. J. MURRAY, Pullman, Washington.

MAYO TOLMAN, Charleston, West Va.

M. B. WILLIAMS, M. D., Wheeling, West Va.

T. F. THOMSON, M. D., Milwaukee, Wis.

GUSTAVE WINDESHEIM, M. D., Kenosha, Wis.

CARL F. RAVER, M. D., Charleston, West Va.

MISS BLANCHE F. WEBB, R. N., Richmond, Va. Exec. Sec'y, Richmond Anti-Tuberculosis Assn.

WILLIAM W. BAKER, Hallsboro, Va. Tanner.

THOMAS J. STRAUCH, Richmond, Va. Chief Dairy Inspector, Health Dept.

WALTER A. BOWRY, Richmond, Va. Chief Sanitary Inspector, Health Dept.

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MILTON W. BRANDT, B. D., Pullman, Washington. Asst. Bacteriologist, Experiment Sta.

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Meetings of Associations.

The Journal will be glad to publish the dates of prospective conventions or meetings of associations whose purposes are allied to those of the American Public Health Association.

American Public Health Association, New Orleans, La., October 27-30, 1919. Take notice of the change of date.

Philadelphia Housing and Town Planning Association, Philadelphia, June 9–10.

American Water Works Association, Buffalo, N. Y., June 9–13.

Tri-State Water and Light Association of the Carolinas and Georgia, Greenwood, S. C., June 17–18.

Maine Medical Association, Portland, Me., June 18–19.

North Dakota Medical Association, Grand Forks, N. D., June 18–19.

Nevada Medical Association, Lake Tahoe, Nev., June 20–21.

Southwestern Waterworks Association, Kansas City, Mo., June 23–26.

New Jersey Medical Society, Spring Lake, N. J., June 24–25.

Health Officers of New York State, conference, Saratoga Springs, June 24–26.

New York State Sanitary Officers Association, Saratoga Springs, June 25.

Southern Minnesota Medical Association, Rochester, Minn., June 30–July 1.

Medical Health Officers of Nova Scotia, Antigonish, July 1.

Florida Public Health Association, August 10.

Texas Public Health Association, date not set.

Southwestern Tuberculosis Conference, Los Angeles, Cal., week of September 22.

Southern Tuberculosis Conference, New Orleans, week of September 29.

Quebec Public Health Association, September.

Iowa Public Health Association, September.

Illinois Public Health Association, October 7–9.

California Public Health Association, October, date not set.

Minnesota Public Health Association, October, date not set.

American Society for Municipal Improvements, New Orleans, La., November 12–14.

BOOKS AND REPORTS REVIEWED

Housing Problems in America. *Proceedings of the Seventh National Conference on Housing, Boston, November, 1918. New York: National Housing Association. Pp. 469.*

The appearance of this volume containing the proceedings of the Seventh National Conference on Housing held in Boston in November, 1918, tempts one to look back at the volume issued after the first conference in 1911. The period of time is short, but the contrast between the two volumes is marked and must be a source of pride to those whose names are identified in this country with housing reform.

At the first meeting garbage and rubbish, privy vaults and alleys, dirt and dilapidation received as much attention as city planning, law enforcement, small houses, and the tenants' responsibility. The emphasis was largely on housing as such. In the new volume the emphasis is rather on housing as a factor in securing not only the health of the people but also their efficiency and contentment, although it is true that even these results seem to be sought rather more in the interests of successful business than of human welfare as such.

In 1911 the standard of housing was to be determined by the assumed necessity of keeping rents down in ratio to the minimum wages of working men. In 1918 positive standards of safety, health, convenience and comfort, secured if necessary by governmental aid, are declared to be a necessary plank in the peace program of democracy.

In 1911 Mr. Lawrence Veiller stated that "the nation's housing problem" today is in great degree the problem of the alley, the problem of the vault and general uncleanliness." He closed his admirable address on "A Programme of Housing Reform" with the following statement: "The garden city movement is a most important one, but . . . it is unwise . . . to allow attention to be diverted from the fundamental and primary necessities of decent housing for the poorest elements of the community by the attractiveness of what must necessarily for many years to come be a development for the better paid members of the community." In 1918 Housing and Social Reconstruction, as shown through various garden city plans, is the keynote. This, together with the attitude of labor on housing, government housing projects, and problems of management leave little space for the slum, though Ralph Adams Cram, in an address on "Scrapping the Slum," shows that the evils of the past have not entirely disappeared.

The "Standards Recommended for Permanent Industrial Housing Developments," adopted by the Federal Bureau of Industrial Housing, mark a long step forward for this country, but there seems some reason to believe that Great Britain is likely to outstrip the United States in formulating a general program of housing reconstruction.

The new emphasis placed in this volume on the social significance of housing will be generally recognized as an important factor in the larger aspects of public health.

Marion Talbot, A. M., LL. D.,
University of Chicago.

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Bacteriology and Mycology of Foods. *Fred Wilbur Tanner, M. S., Ph. D., Associate in Bacteriology, University of Illinois. New York: John Wiley and Sons, Inc. Pp. 592. Price, $6.00.*

Most of the standard books on bacteriology deal mainly with medical bacteriology, although each attempts to cover the general principles and history of the subject also. In Dr. Tanner's book, we have one which is unusually complete in dealing with the general principles of bacteriology, yet one which does not consider medical bacteriology at all, except in so far as the bacteria in air, water, and food may affect health. On the other hand, the book omits the history of the subject. It is important for a beginner in bacteriology to know the mile posts in the development of the subject, and to understand the difficulties which previous workers had to overcome. The first five chapters, which are equivalent to 181 pages, deal with the principles of bacteriology. These chapters are very complete, particularly chapter 2, which deals with media, and chapter 5, which takes up sterilization and disinfection.

Chapter 6 is on the chemistry of proteins, carbohydrates, and fats. Chapter 7 deals with yeasts and molds, the methods for studying these microörganisms, and their classification. In chapter 8 the intestinal bacteria are considered, together with the factors that influence them. The methods for examining feces for various microörganisms are also given.

Chapter 9 is a brief chapter on the bacteriology of air. This chapter could be enlarged with profit. On the other hand chapter 10, which deals with water hygiene, is quite complete. The author perhaps transgresses the legitimate limits of his subject by considering the chemistry as well as the bacteriology of water. There are also several pages

on the disinfection of water by liquid chlorine and hypochlorite. The bacteriology of ice is also considered. The latest methods for examining water, for differentiating between fecal and non-fecal *B. coli*, and for the isolation of *B. typhosus*, are given.

The chapter on milk and milk products is also complete. The composition of milk, the cultural and microscopical examination of it, the presence of pathogenic bacteria, the dairy score card, and the subject of pasteurization,—all of them are considered, and in addition, the bacteriology of butter, cheese, fermented milks, condensed milk, and ice cream.

Chapters 12, 13, and 14 deal with the microbiology of other foods, such as eggs, meat, meat products, oysters, canned goods, and ketchup. The methods of perserving food are also considered briefly. There is also a brief discussion of food poisoning. The chapter on the bacteriology of eggs contains numerous photographs which are both attractive and instructive.

The last chapter deals with epidemiology very briefly, particularly in connection with foods such as water, milk, and oysters. This chapter is followed by an appendix which contains numerous tables for specific gravities, solubility of oxygen in water, equivalents of all kinds, and the equivalents of factors used in foreign systems. There are also directions for preparing standard solutions which are necessary in the laboratory.

On the whole, the volume represents a contribution to the available books on bacteriology, particularly those dealing with the bacteriology of foods. It is exhaustive in most of the things that are considered. At the end of each chapter an extensive bibliography on the particular subject under consideration is given. Certain things like the cycles of nitrogen, carbon, and sulphur are omitted. The index too, is scanty for a treatise of this size and worth. It is a book which is recommended very highly to all those interested in general bacteriology, and in the bacteriology of water, milk, and solid foods. *Murray P. Horowitz, M. S.*

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The Rockefeller Foundation, Annual Report for 1917.

It is only on looking through a volume like this that one realizes the tremendous energy of the Rockefeller Foundation. There is no corner of the earth into which the International Health Board has not penetrated with the activity of its agents and its influences for good. It has been working with the Red Cross and the camp commissions. It has been caring for victims of infantile paralysis, and, with a world-wide research staff, has been helping governments to assume responsibilities. Its campaign against malaria is already fairly well known to the American public, but the plannings to eradicate yellow fever are not so fully understood. The principle underlying these is to select those localities in which the disease is endemic and eradicate it at these foci of its distribution. A novel feature has been its floating dispensary and hospital, a ship which plies about the warm waters of the Philippine Islands acting as a dispensary at the ports at which it calls and serving for a hospital and means of transportation to one of the base hospitals, which have been established at Jolo and Zamboanga. The medical education undertaken in China would be a splendid work for any single institute, but here the Foundation as only one of its activities has joined forces with the Y. M. C. A. and Chinese Medical Association. It is building its own medical college which, with laboratories and accessories, will be a model medical center in the midst of the capital of this Oriental country, and this center is not to be the only one in that country. In a still different line of work, have been travelling scholarships, in which those who are to work in distant countries may have their foundations laid in the best medical and sanitation schools in the world.

It is hardly more than a decade since hookworm was discovered to be a disease of the Southern States. Its progress through Europe from Italy through other mining countries, even into Wales, was then an interesting story, but no one realized at the time the world-wide distribution of this intestinal malady. The International Health Board has established its stations on the islands of the Pacific, on the continent of Australia, in strange, uncivilized New Guinea, in the East Indies, with outlying stations in Farther India, China and Ceylon. Africa, many points in South America, the Cayman Islands in the West Indies and a dozen stations in the Southern States of this country have been the centers of work in this single disease, of which, for the first time, a world survey has been made. Some of the figures are extraordinary. In the valley of the Ganges, for example, an examination of 600 persons showed an infection of 99.9 per cent, while in Brazil, along the Amazon, there was an infection of about 10 per cent less. This will serve to show the nature of the campaign against the disease. The economic results of this single effort alone cannot fail to be enormous, since it is a malady which affects directly the output of the individual. Soil sanitation is one of the means of control, for the disease, it should be understood, is one that is most effective in a country with bare-footed population, unprovided with regular outhouses or latrines. In Ceylon one of the results of the work of the board has been the installation of not less than 20,000 latrines within the year. In these matters the Foundation not only furnishes

the stimulus but not infrequently a considerable portion of the financial support.

Anti-tuberculosis work was carried on during the year in France in connection with the French government and the Red Cross. The splendid way in which this campaign has been fitted to the psychology of the French people, without losing any of the vigor and push of American initiative, is a model in this kind of educative work in which it is necessary to interest a people.

It will not do to neglect the war work of the Rockefeller Institute for Medical Research, whose efforts would have been justified had nothing further resulted save the Carrel-Dakin methods. The war demonstration hospital of the Institute was available further as a school of inestimable value to the medical officers of the Army and Navy.

Every health officer, every physician, every student, every citizen should know of this splendid humanitarian work, fundamental as it must prove to be in the freeing of the world from the incubus of communicable disease.

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"Journal of Industrial Hygiene."—Volume I, No. 1, of a new monthly periodical, *The Journal of Industrial Hygiene and Abstract of the Literature*, appears with the May, 1919, issue thereof. In 1918, Harvard University received a fund which permitted, among other things, of the inception of this journal, which is the first periodical in the English language devoted entirely to the interests of industrial health. It contemplates wide vision in the problems concerned. It is to publish articles of current interest in industrial hygiene, medicine, surgery, vocational training, and welfare work. An appeal is made to industrial physicians to record their experiences and observations in its pages. The first issue is a volume of about 100 pages, 8 x 11, bound in heavy brown paper, and published by the MacMillan Company. Four weighty papers comprise the body of the first issue, while papers by a long list of persons well known in the field are advertised for succeeding numbers. The balance of the first issue is devoted to the Abstract of Literature, which is to be a special feature of the *Journal*. For this purpose, about 200 periodicals and publishing agencies have been listed for abstracting. This work is done by a staff of 42 abstractors and reviewers. Abstracted material is arranged under 25 subject headings. A limited amount of selected advertising is also carried. The editors are David L. Edsall (*United States*), A. F. Stanley Kent (*Great Britain*); honorary contributing editor, Thomas M. Legge; associate editors, W. Irving Clark, Alice Hamilton, Emery R. Hayhurst, Yandell Henderson, William H. Howell, Frederic S. Lee, Harry E. Mock, J. W. Schereschewsky, C.-E. A. Winslow; managing editors, Cecil K. Drinker and Katherine R. Drinker. The American subscription rate is $5.00 and the foreign rate, $6.00 per year. The *business offices* are the MacMillan Company, 64–66 Fifth avenue, New York City; *editorial offices*, 240 Longwood avenue, Boston, Massachusetts.

[Abstracts of articles in the new *Journal*, appropriate for our notes, will appear regularly in this section.] (*E. R. H.*)

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"Modern Medicine."—The first number of *Modern Medicine*, a new monthly magazine, makes its appearance with the May, 1919, issue. It announces its policy as "the application of medicine and allied sciences to industrial efficiency and national health." In addition to considerable space devoted to original articles of a general nature, there are sections under the headings of Medicine and Industry, The Nation's Health, Problems in Social Medicine, and The Month in Medicine. The editorial staff consists of Alexander Lambert, S. S. Goldwater, Otto P. Geier, C.-E. A. Winslow, and Walter W. Hamberger, with John A. Lapp as managing editor. The Modern Hospital Publishing Company, Chicago, Illinois, are the publishers. Subscription rate is $3.00 per annum. The first issue consists of 92 pages of reading matter and 60 pages of advertisements. The magazine is attractive in appearance, the material is well arranged and printed on good paper. It should prove of distinct value to "physicians and others interested in administrative, industrial and social problems." [Readers of these pages of the JOURNAL may expect to see abstracts from *Modern Medicine* at regular intervals.] (*R. P. A.*)

Don't Fail to be at New Orleans,
October 27-30, 1919.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horowitz and Mayo Tolman.

Great Hospital for Chinese in France.—The largest hospital in the world exclusively for Chinese is not in China, but in France. It serves the many Chinese who have come into France, of whom 140,000 are laborers, who have been employed in various capacities in the prosecution of the war. The location of the hospital is on a hill in the village of Noyelles, near the mouth of the River Somme in northern France. It was built for about 1,500 patients but for emergencies has held 1,800. The chief of staff is Colonel Gray, formerly of the British Legation, Peking, who is assisted by sixteen physicians and about 300 nurses and attendants. Quite a number of the assistants are medical missionaries, who have been in China and understand the psychology of the Chinese, which, it is said, has been one of the serious problems.

The buildings are good in construction, conform to the Chinese custom of limiting the height to one story, and are arranged on the sides of short streets running into a wide central road. Each building has its stove for heating purposes and is furnished with plenty of windows for light and ventilation. There is a detached area, with high barbed wire entanglements and guarded, for the insane, of whom there are 60, while another separate place is provided for lepers, of whom there are 16.

This remarkable hospital has most modern equipment. There are medical and surgical wards, with special ones for tuberculosis, influenza, trachoma, venereal and contagious cases and, in addition, an emergency ward. The operating section has adjoining X-ray and sterilizing rooms; there is a convenient laboratory with an outfit of rabbits and guinea pigs; the camp is furnished with an incinerator for refuse and garbage, and on the outskirts there is the graveyard in which 350 laborers lie buried. Their companions have raised a fund to erect in Peking a memorial to those who have given their lives to the great common cause.

The Journal is indebted for these particulars to Dr. W. W. Peter, whose work in China in the great anti-tuberculosis and health education movement has attracted so much attention. During his stay in France he was called upon to visit the hospital, and while there continued his educational work, his experience in China having given him good command of the complicated language. It was interesting that at a lecture with lantern slides, to the staff, he was able to show to the company pictures from his own camera of the work in China which showed the faces of the medical missionaries present, transferred like himself to labors on the opposite side of the globe.

Aside from the medical aspect of the situation, Dr. Peter considers that the presence of so many Chinese in France means very much for the future of China. Although these men are seeing the sad side of our western civilization, their experiences in the hospitals and in the huts of the Y. M. C. A. will do much to offset this. They will be, on their return, the popular men in their home districts, and like other travelers will be centres of public information, and will probably, in their own country, have a larger hearing than has been accorded to any foreigners. It is most important, therefore, that they have the opportunity to see the better side of our life.

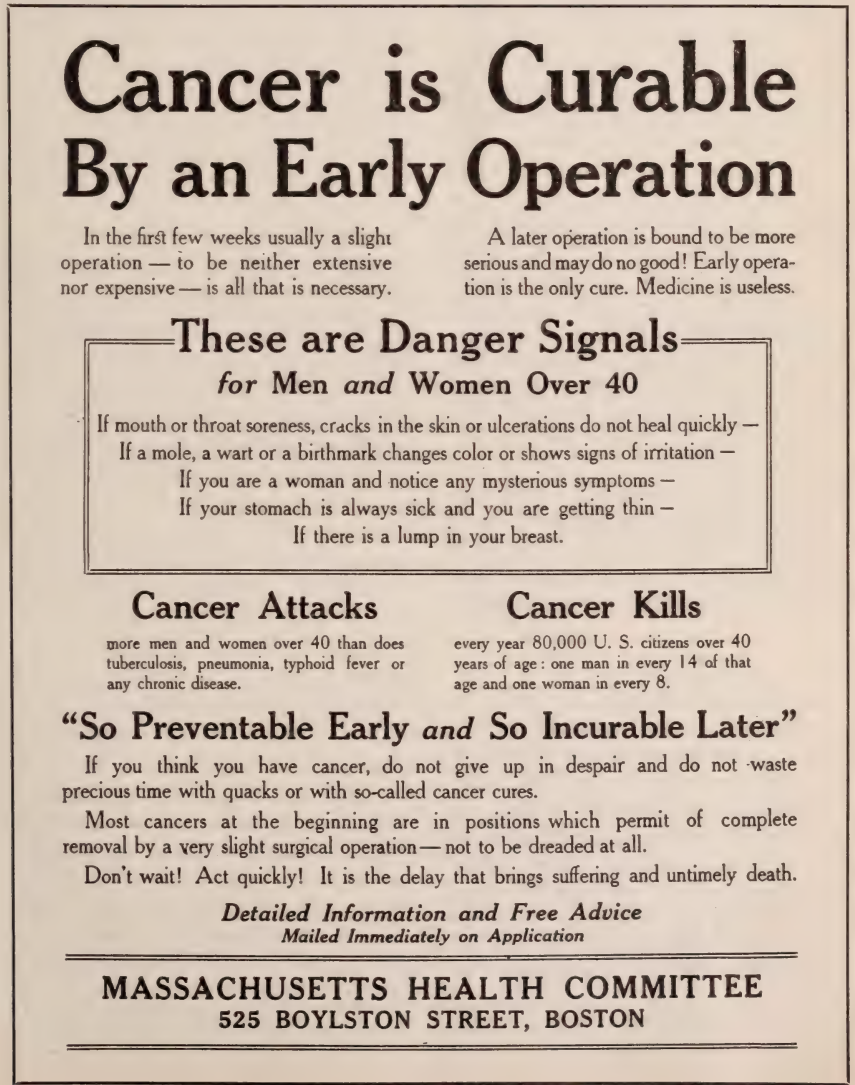
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What Has the Health Demonstration Done for Framingham?—Dr. Donald B. Armstrong, the executive secretary of the Framingham Health Demonstration, summarizes the work of the experiment as follows: More than 6,000 citizens have been thoroughly examined, and 4,000 referred to physicians for treatment; 250 cases of tuberculosis, mostly incipient, have been discovered and brought under treatment. Every aid has been given local authorities in the treatment of cases of tuberculosis. An expert medical consultation service was placed at the service of physicians free of charge. Expert medical aid was given free of charge to the local draft board. Children having nose, throat and glandular defects have been followed up, and remedies applied wherever possible. A course of lectures by well-known experts was given for the benefit of the local physicians. Much was done in attempting to control the ravages of influenza. A model X-ray machine has been placed at the service of the physicians to aid in the diagnosis of tuberculosis and other diseases. Infant welfare work was conducted. A summer camp for 400 pre-school age children was held in order to discover and remedy diseases and defects. A dental clinic was established for the school children. The health of the worker in industry has also been safeguarded as much as possible. Classes in domestic science and food economy were held. The milk supply was investigated and improved. The general health conditions of Framingham were studied. In addition a very extensive campaign in public health education was conducted, besides coöperating with every agency in the city, interested in promoting good health. *Journal of Outdoor Life*, March, 1919.

(*M. P. H.*)

New Idea in Posters.—There is much more in the way of convenient use for educational purposes of the poster of the Massachusetts Health Committee, headed, "Cancer is Curable," than may at first appear. It is part of a nation-wide campaign to reduce the mortality from cancer, which, as vital statisticians know, is very rapidly forging to the front rank among causes of death. How serious it is is evident from the fact that it carries off from 90,000 to 100,000 citizens each year. The poster, a facsimile of which is herewith presented, has been well considered with reference to reproduction anywhere. It is the intention of the committee to secure a wide distribution of the stock, which it has printed in quantity, but at the same time there are opportunities in the presentation of its form in newspapers, or in special reprints where the local authorities may wish their own posters, for which the printed posters will not serve.

To care for all these contingencies, first the type of the poster was considered and it was carefully so selected that the fonts needed to reproduce it are among those to be found in any good printing office in the country. Then for a guide to the printer the committee has issued a short list of the fonts necessary. Any body or any association may thus duplicate the poster, which contains no freak type. Then with the measure of the poster, 12½ inches by 9½, the printer may make the precise reproduction of the standard, which is the more impressive since it is everywhere alike, and conveys everywhere the same message.



Medical Examination Campaigns.—In order to obtain an accurate cross section picture of illness in a supposedly normal group with special reference to tuberculosis, the members of the Framingham Community Health and Tuberculosis Demonstration carried out two medical examination campaigns. Out of a total of 4,473 individuals examined 77 per cent were recorded as ill. The definition of illness adopted in this study included any disease or defect which, in the opinion of the examiner, showed the individual to be in need of medical or dental advice or treatment, so that the amount of illness disclosed included minor as well as serious affections. In fact serious illness constituted 25 per cent of all examined.

With regard to preventability the examinations showed that 64 per cent were suffering from affections which might be considered as directly preventable; 22 per cent were partially preventable, and only 14 per cent entirely non-preventable.

Concerning tuberculosis, 96 cases were discovered, or a rate of 2.2 per cent for the total number examined. Of these 25 cases were incipient, 17 cases were advanced, and 54 were arrested. For the three most prominent nationalities, the tuberculosis incidence rates were, American, 2.58 per cent; Italian, 0.48 per cent; Irish, 4.85 per cent. Of interest, bearing on the question of tuberculous infection as contrasted with tuberculous disease, are the results of the tuberculin survey on children between the ages of one and seven years. The percentages of positive reaction according to nationality groups in the latter survey were American, 18 per cent; Italian, 51 per cent; Irish, 30 per cent.

Contrasting the efficacy of medical examination campaigns with the health census this study shows that the former method will bring out twelve times as much illness as the latter.—Framingham Community Health and Tuberculosis Demonstration, *Monograph No. 4.* (*D. G.*)

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Factors Affecting the Antiscorbutic Value of Foods.—In infants the question of scurvy centers about the milk supply. An infant requires fully one pint of fresh raw milk daily to protect it from this disorder. If the milk is pasteurized, or stale, or heated for a second time, or rendered more sensitive to deterioration by means of an alkali—and particularly if more than one of these influences are operative—more than a pint is needed. The fact that there is an inverse relationship between the amount of milk consumed and the tendency to scurvy shows that we are not dealing with an exogenous toxin and argues in favor of the disorder being primarily a deficiency disease.

Milk does not necessarily lose its antiscorbutic value in the course of drying. If it is dried rapidly even at a temperature of about 240° F. it retains sufficient of the protective factor to have curative value, provided, naturally, that it was fresh at the time of drying. In considering the question of destruction of the "vitamin" by heat or by alkali, the duration of exposure to the detrimental influence is of the greatest importance.

Babies fed on pasteurized milk should receive an antiscorbutic from the time they are a few weeks of age, as there is no reason for allowing the negative balance of "vitamin" to continue for a longer period. A small amount of orange juice will answer the purpose, and is potent for a period after alkalinization.

Strained canned tomatoes have been given in place of orange juice to a large number of infants, and this has been found a very effective antiscorbutic, and is well borne by babies a few weeks of age. It has the advantage of low cost and availability and, therefore, is of particular value for the infants of the poor. A. F. Hess and L. J. Unger, *Amer. Jour. of Dis. of Child.* April, 1919, 221.

(*D. G.*)

✽

Proper Cleansing of Soda Fountain Glasses.—The danger of transmitting disease germs through improperly washed soda fountain glasses has been realized for some time. The problem received particular attention during the recent epidemic of influenza-pneumonia. Recently the New York City Department of Health inspected 1,751 soda fountain stores in Greater New York and found that 296, or 15.7 per cent, were violating the law regarding the proper cleansing of cooking, eating and drinking utensils. The law requires that each glass be washed in a hot solution of soap powder or soda with the employment of a brush or other effective implement of friction. After this the glass is supposed to be rinsed in clean, hot water or sterilized.

According to some experimental work that is being conducted in the research laboratories of the New York City Department of Health, it appears that the glasses can be freed from danger simply by dipping into a 2 per cent or weaker solution of chlorine, and then rinsing in running water. The chlorine water is prepared from a saturated, standardized solution of chlorinated lime. Another effective means of sterilizing the glasses is by the use of steam for thirty minutes after each glass has been thoroughly washed. This method is said to be inexpensive. *American City*, April, 1919.

(*M. P. H.*)

STATE HEALTH NOTES—LEGISLATION

United States.—*New Federal child labor law declared unconstitutional.*—On the ground that it sought by indirection in the use of the Federal taxing powers to accomplish the regulation of employment and that this was an invasion of the States' regulatory authority, Federal Judge James E. Boyd has declared the child labor section of the War Revenue Bill to be unconstitutional.

The section in question is Title XII of the Revenue Act of 1918, of which the principal section reads as follows:

"That every person (other than a bona fide boys' or girls' canning club recognized by the Agricultural Department of a state and of the United States) operating (a) any mine or quarry situated in the United States in which children under the age of sixteen years have been employed or permitted to work during any portion of the taxable year; or (b) any mill, cannery, workshop, factory, or manufacturing establishment situated in the United States in which children under the age of fourteen years have been employed or permitted to work, or children between the ages of fourteen and sixteen have been employed or permitted to work more than eight hours in any day or more than six days in any week, or after the hour of 7 o'clock post-meridian, or before the hour of 6 o'clock ante-meridian, during any portion of the taxable year, shall pay for each taxable year, in addition to all other taxes imposed by law, an excise tax equivalent to 10 per centum of the entire net profits received or accrued for such year from the sale or disposition of the product of such mine, quarry, mill, cannery, workshop, factory or manufacturing establishment."

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Ontario.—The act for the establishment of a Federal health department for the Province has passed the House of Commons and is now in the Senate.

*

Colorado.—A bill was passed at the last legislature providing for a detention home for women suffering from venereal diseases.

*

Georgia.—This state has awakened to the importance of legislation with reference to venereal diseases. During the summer a bill is to be presented to prohibit persons affected with venereal disease from working in hotels, restaurants, at soda fountains or in any place where food is handled for human consumption.

*

Iowa.—Legislation under way or ratified. The legislature, 38th General Assembly, just adjourned, enacted a law tor the control of venereal disease in the state of Iowa, making an annual appropriation of $15,000 which with a like amount received from the government, will make available $30,000 annually for Iowa. It is an excellent law. There is also a new housing law, just passed, which is approved by the National Housing Association. A new law now provides that Spanish influenza shall be quarantinable in this state. The board of health appropriation was increased, the epidemiology and laboratory appropriation was increased and, in short, it has been said that the 38th General Assembly of Iowa was a public health legislature.

There is a new hotel inspection law, which requires all hotels in the state to pay an annual license according to number of rooms, and the department maintains three inspectors to check up and inspect hotels. Iowa has had a hotel inspection department, but the law did not provide for the licensing of hotels. It provided only for the inspection of same and when inspected a fee was charged and a certificate of inspection given. Iowa has 1,568 hotels.

*

A new housing law has just been adopted by the Iowa state legislature. This is a most carefully prepared law and will bring much benefit to the people of the state. The law becomes effective July 4, 1919. A copy of the new *Housing Bulletin*, issued by the Iowa State Board of Health, may be obtained by addressing Dr. Guilford H. Sumner, secretary, executive officer, Iowa State Board of Health, Des Moines, Iowa.

*

Missouri.—The bill before the General Assembly for the establishment of a Bureau for the supervision of mental defectives and also a bill providing for the use of silver nitrate in the eyes of infants, have both been defeated.

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New York.—*New Laws Relating to Public Health at the End of the Legislative Session of 1919.*—Chapter 40. An act to amend the public health law, in relation to certain contagious diseases, provides for the detention of a person suspected of having any infectious venereal disease until the results of a laboratory examination are known. It also provides for such examinations in the cases of certain persons under arrest.

Chapter 57. An act to amend the county law, in relation to county tuberculosis hospitals. This new law has special reference to Madison County.

Chapter 209. An act making an appropriation for the prevention, control and treatment of venereal diseases. This law appropriates fifty-five thousand dollars ($55,000), and specifies the distribution by

creating a special laboratory unit and indicating employees thereof with their salaries.

Chapter 213. An act to amend the public health law, in relation to vital statistics. Amends section 372 relative to the appointment of a registrar when a district is divided into two or more primary registration districts, or when two or more primary districts are combined, and indicates how remuneration and expenses of the registrars of such districts shall be paid. Amends section 373, providing that no licensed undertaker or embalmer or person employed in such business shall be eligible for appointment as a registrar of vital statistics. Amends section 389 by providing that registrars within ten days after receiving the certificate of any birth shall mail to the parents or guardian of the child a certificate of registration on a form furnished by the state commissioner of health. This certificate of registration shall be accepted by public authorities in the state in the same manner as certified copies of birth certificates. The registrar is to make a notation on his copy of the original birth certificate indicating the date of issuance of such certificate of registration. Section 390 provides that each midwife shall also receive fee for registering births. Under this section each local registrar is to be paid the sum of two dollars for the monthly report on such form as may be provided or required by the commissioner.

Chapter 234. An act to amend the public health law, in relation to the definition of chiropody.

Chapter 421. An act to amend the public health law, relative to the establishment of hospitals or camps for the treatment of pulmonary tuberculosis. It has special reference to Warren County.

Chapter 423. An act to amend the public health law, in relation to consolidated health districts. Makes the supervisors of each city included in a consolidated health district members of the board of health; except that if the number so provided is more than seven such members shall meet and elect a board of health of three members for such district, and provides for a certain term of office thereof.

Chapter 502. An act to amend the code of criminal procedure, in relation to the definition of vagrant . . . with reference to the subject of prostitution.

The following laws were also enacted during the 1919 legislative session:

Chapter 250. An act to amend the general municipal law, in relation to convention expenses of municipal officers and employees.

Chapter 353. An act to provide for a department of public health in and for the city of Syracuse.

Chapter 359. An act to amend chapter six hundred and eighty-five of the laws of nineteen hundred and five, entitled "An act to supplement the provisions of law relating to the department of public safety of the city of Syracuse," in relation to the bureau of health.

Chapter 455. An act to amend the village law, relative to the acquisition of private water systems.

Chapter 523. An act to amend the town law, in relation to the enlargement and extension of water districts.

Chapter 590. An act to create a commission to confer with committees of Congress, in relation to Indian affairs, and making an appropriation for the expenses of the commission.

Chapter 615. An act to authorize the investigation of the extent and character of and methods for eliminating the pollution of streams, and making an appropriation therefor. Appropriates ten thousand dollars ($10,000).

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North Carolina.—Legislation aimed at controlling venereal diseases in North Carolina was enacted by the recent General Assembly. This legislation requires that all cases of venereal diseases be reported to the State Board of Health by the attending physician. The reports are made by identification numbers which are supplied by the physician and the name of the patient is not divulged as long as treatment is continued until a cure is effected or the patient has been rendered non-infectious. In cases where the patient fails to continue treatment the doctor is required to report the matter to the bureau of venereal diseases of the State Board of Health, and if the patient still refuses to be treated he is quarantined and his name is given out.

The first indictments under the new law have been made and two physicians were fined $25 each.

✱

North Dakota.—A bill was passed at the recent legislature requiring a public health nurse for every county in the state, on petition in writing by two thirds of the school directors of the county.

✱

Ohio.—The Hughes bill has become a law. Changes recently made by the legislature in the Ohio laws governing tuberculosis hospitals do not forecast any change in the policy of the state toward these institutions. Hospital measures passed are:

The Harter bill, permitting a county which holds membership in a tuberculosis hospital district to provide additional local facilities at its own expense for the care of tuberculosis sufferers, if the district hospital fails to provide adequate accommodations.

The Crosser bill, authorizing a county in a hospital district to withdraw from membership and sell

its interest to any other county in the district, if this action is approved by the State Department of Health.

The Gardner bill, authorizing a county in which a municipal tuberculosis hospital is located to establish a county hospital or to buy or lease the existing municipal hospital.

All of these measures were drawn to fit special cases. The first two were designed to provide a means of settling difficulties between the counties in the Springfield Lake Sanatorium district. The Gardner bill is intended to provide a means to transform the Cincinnati municipal hospital into a county institution. Under former law, no authority for the establishment of county hospitals exists and a county in which a municipal hospital exists may not enter a district organization.

The district hospital law remains unchanged in its essential details, and the policy of the State Health Department will be to continue encouraging the development of additional districts. Five district tuberculosis hospitals are in operation and two other proposed districts have effected preliminary organizations. Any group of from two to ten counties may by voluntary organization join in establishing a district. It is estimated that the state now has hospital accommodations for only one third of the tuberculosis sufferers who need hospital care.

The power of the State Department of Health to enforce its orders for sanitary improvements in Ohio municipalities was restored by the legislature just before it adjourned for recess.

The passage of the Ritter bill puts the Bense law, granting the department authority to order such improvements, back in its original form. At its last previous session the legislature inserted provisions which have worked out in practice to hold up many important improvements.

✻

Oklahoma.—The recent legislature passed a bill for the erection of three tuberculosis sanatoriums.

✻

Tennessee.—After an anti-vice bill had received a large vote of approval in the legislature, it was vetoed by Governor Roberts, who thus places this state in a unique position in the Union. The fight has not been given up, however, for it is believed that existing laws may be made available for such work as to enable Tennessee to take advantage of the Federal appropriation, which here would amount to $23,755.31.

✻

Wisconsin.—Satisfactory progress of the health legislation program is being made in the state legislature. Among bills either fully enacted or having passed both houses are the following: Making influenza a reportable disease; authorizing local health boards to order closed schools, churches, theatres, and public assemblages for control of influenza; legalizing delayed vital records; classing chancroid as a venereal disease and prohibiting druggists from prescribing and circulation of advertisements of cure; requiring every municipality to establish one or more public comfort stations; creating a department of occupational therapy at county tuberculosis sanatoria; authorizing counties having county sanatoria to provide out-patient departments to encourage follow-up activities; prohibiting use of vehicles for purposes of prostitution (a measure for venereal disease control).

The bill fostered by the state board bringing all water and ice supplies and sewerage works under control of the state board passed the lower house, 75 to 0, and its final enactment is believed certain. The bill requiring all counties to employ a county public health nurse passed the assembly and is before the senate. The bill exempting local health officers from liability for acts performed in pursuit of their duties was killed—the only health measure of major importance thus far to suffer defeat.

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STATE HEALTH NOTES—GENERAL

Ontario.—The Ottawa Health Society gave a demonstration of its spirit when in April nearly one hundred persons appeared before the city council to demand an extension of the district nursing society, and the control by the health board of the school nurses in all classes of schools.

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District of Columbia.—The district officials have issued special circulars of warning to the proprietors of stores in which articles are for sale which the purchaser may be tempted to put into his mouth, and then return to the stock. One poster is addressed to the salesmen of cigar holders, pipes and the like, while another has been circulated among the stores which deal in toys including horns, mouth organs and blow balloons. All these different kinds of posters and circulars tell of the danger of conveying infection by such procedure.

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Illinois.—The State Department of Public Health has received reports of ninety cases of lethargic encephalitis. Fifty-five of these patients are located in Chicago and the remainder scattered throughout the state. All cases of lethargic encephalitis have been investigated by a representative from the Department of Public Health, the diagnosis being confirmed and the clinical phases checked up.

By a joint resolution of the General Assembly, the week beginning May 11 was designated as Health Promotion Week and was observed by all governmental and extra-governmental health agencies in a wide campaign of health education. A Health Promotion Week Committee, made up of the executive officers of state health organizations, was headed by Governor Frank O. Lowden as honorary chairman, and Dr. C. St. Clair Drake, as chairman. The general program was under the direction of W. D. Thurber, executive secretary of the Illinois Tuberculosis Association, whose services were loaned to the state for that purpose. It is expected that Health Promotion Week will be observed each year and that it will result in a much closer coördination of all health agencies in Illinois.

Health Promotion Week, from May 11th to 17th, designated by a joint resolution of the General Assembly of Illinois for the coördination of all governmental and extra-governmental health and social agencies to meet the problems of reconstruction, was observed with remarkable enthusiasm throughout the cities, towns, and rural districts of Illinois. This coördination of public health activity was supervised by the State Department of Public Health and was directed by Walter D. Thurber, executive secretary of the Illinois Tuberculosis Association, whose services were loaned to the state by that organization. In addition to the health and social agencies, active coöperation was afforded by the State Press Association, the State Federation of Women's Clubs, the State Federation of Labor, the State Parent Teachers' Association, the State superintendent of public instruction, the State Manufacturer's Association and the state organization of Chambers of Commerce.

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Indiana.—The Twenty-fifth Annual Health Officers' School was held under the auspices of the Indiana State Board of Health at Indianapolis, May 5th and 6th. Over three hundred were in attendance. The following notice from the State Board of Health explains the why and wherefore of the Health Officers' School.

"To Health Officers: This Conference is a school for the study and discussion of questions pertaining to your duties as a health officer. Your community is paying your expenses and has a right to expect you to attend the sessions, to take part in and to be benefited by this school."

The occasion was made the more notable through the presence of Hon. Peter H. Bryce, chief medical officer of the Canadian Immigration Service; Hon. Charles Hastings, medical health officer of the Province of Toronto; and Dr. Lee K. Frankel and A. W. Hedrich, president and secretary, respectively, of the A. P. H. A. Some of the important papers presented were: "The Burden of Feeblemindedness," by Mr. Amos Butler, secretary of the State Board of Charities; "The Fight Against Venereal Diseases," by Dr. F. W. King; "Heredity and Public Health," by Professor D. B. Myers of the Medical Department of the State University; "War Neuroses," by Dr. C. D. Humes of Indianapolis, formerly major in the U. S. Medical Corps and "The Army Surgeon and His Health Work," by Lieutenant Colonel George B. Lake, commanding officer, U. S. General Hospital, No. 25, Fort Benjamin Harrison. According to Dr. J. N. Hurty, state health commissioner, Colonel Lake was formerly health officer of Wolcottville, Ind., and in this position he made such a thorough cleaning-up of the town as to incur the displeasure of all the "peanut" politicians within its borders.

On May 6 an enthusiastic gathering of Indiana health workers, assembled in Indianapolis, was the beginning of the Indiana Public Health Association. The subject had been presented the day before by Dr. Lee K. Frankel, president of the A. P. H. A. in an address before a meeting of the health officers of the state. In response to this about one hundred persons attended the organization luncheon at the Claypool Hotel at which Dr. H. A. Cowing, president of the Indiana State Board of Health was chairman.

Dr. J. N. Hurty, state health commissioner, Dr. N. D. Berry of Muncie, and Dr. F. Shoemaker of Bluffton presented a report on a constitution.

Dr. J. N. Hurty was named temporary chairman, and Dr. Ada E. Schweitzer of Indianapolis, temporary secretary.

It is planned for the I. P. H. A. to have a broad membership taking in all persons interested in public health and working in affiliation with existing specialized health organizations. Twenty-one applications for membership in the A. P. H. A. were presented by the health officers at the meeting and thirteen others have been received since.

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Iowa.—The situation in Iowa for the care of tuberculosis has been outlined for the JOURNAL by A. E. Kepford, state lecturer, on the disease and its treatment.

The campaign against tuberculosis in Iowa has been in active progress for fourteen years. As a result of the agitation some ten years ago, the state sanatorium was established near Iowa City for the care and treatment of persons afflicted with tuberculosis. The institution was established in the beginning for incipient cases only. Later the law was amended, including all classes of patients. Accordingly a hospital for the advanced incurable

cases was established as a part of the sanatorium. This increased the capacity to 250 beds.

The state sanatorium, being inadequate to meet the needs of a population of approximately 2,500,000 people, has been relieved by the establishment of several county hospitals for the treatment of tuberculosis. The pioneer county hospital is Pine Knoll, at Davenport. This institution was opened about eight years ago and has now reached a capacity of 66 beds.

The second county to establish a hospital was Wapello, whose institution is located at Ottumwa. This hospital is in its early stages of development and has a bed capacity of 20.

Dubuque County is now building in the city of Dubuque a sanatorium which will have a capacity of 80 or 100 beds. Several other counties in the state have voted funds for the construction of county institutions.

Pottawattamie, Mills and Harrison counties, through the American Red Cross, have bought a beautiful site within the corporation of Council Bluffs and are now engaging in the construction of an initial unit of 40 beds.

There is at Fort Dodge a private institution, owned and operated by Dr. J. W. Kime, a pioneer in the open air method of treatment of tuberculosis. His sanatorium is known as Boulder Lodge and has a capacity of 20 beds.

A number of counties are now agitating for tuberculosis hospitals.

At the present time there are nine clinics in operation under the auspices of the United States Public Health Service and the Iowa State Board of Health. The expense of these clinics is borne by the County, State and United States Public Health Service. The clinics are free, all the medication being furnished by the government. Not only are these clinics being used as medical centers, but much needed education is being sent out from these quarters.

In the next few weeks there are to be established eight more clinics making a total in all of seventeen clinics. These new clinics are to be established and maintained in the same manner as those already in operation.

The Iowa State Board of Health has just issued 25,000 of its *Bulletin for Boys*. This is a pamphlet of forty-eight pages, well illustrated, and should be studied by the youths of the country as well as the state. This is a part of the campaign of useful education by the state board, which is distributing the bulletin, *Keeping Fit*, free to any who apply. The headquarters of the board is Des Moines.

One of the Iowa associations in Des Moines has undertaken to supplement the local public health work by a new film, entitled, "The Solitary Sin." This teaches the principles which are modestly presented and are very necessary to the proper education of the youth of the country.

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Kansas.—In spite of the pleas of certain manufacturers for a reconsideration of the rule prohibiting saccharine, the United States Department of Agriculture has refused to change the rule. No saccharine may be used in food products offered for sale to the public in Kansas.

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Minnesota.—A meeting was held at Princeton, Mille Lacs County, Minn., for the purpose of organizing a County Health Association. The organization committee included: Chairman, Olaf Wasenius, county superintendent of schools; O. A. Dahlberg, county agricultural agent; C. H. Nelson, chairman of the Red Cross; and two ladies, Mrs. J. F. Petterson and Mrs. E. Evans.

The Kanabec County Public Health Association in Minnesota has been organized. On March 10 the meeting was held at the court house in Mora. A constitution and by-laws were adopted and an executive committee elected. President, Mrs. Clark Brunswick; secretary, E. T. Baumhofer; treasurer, Almer J. Peterson; vice-presidents, A. T. Westrom and Mrs. Charles Reynolds.

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New Mexico.—Governor O. A. Larrazolo of New Mexico has appointed the members of the new State Board of Health. John Tombs of Albuquerque, executive secretary of the New Mexico Public Health Association, is executive secretary of the board; Dr. John F. Pearce, also of Albuquerque, is to be the medical member; H. O. Bursum of Socorro is the third appointee and, with the selection of a commissioner of health promised soon, the organization will be complete.

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New York.—*Physicianless New York Communities.*—The attention of the JOURNAL has been called to the fact that there are in New York state a number of rural communities which are in effect without medical service. There are without question physicians to whom such a situation may appeal, and the JOURNAL here presents a list of such communities together with the name for each one of some person from whom further particulars may be obtained.

Community	*County*	*Can give information*
Wyoming	Wyoming	Mr. Myron Kelley, Wyoming, N. Y.
Groveland	Livingston	Dr. J. Kirby Collier, Sonyea, N. Y.
Cameron	Steuben	Mr. G. L. Williamson, Cameron, N. Y.
Enfield Center	Tompkins	Mr. F. D. Rumsey, Newfield, N. Y.
Moravia	Cayuga	Dr. S. N. Thomas, Moravia, N. Y.

Virgil	Cortland	Mr. Harmon Sheerar, Virgil, N. Y.
Altmar, Redfield, Williamstown	Oswego	Mr. Charles Nichols, Richland, N. Y.
Chittenango	Madison	Dr. R. A. Warner, Health Officer, Chittenango, N. Y.
Turin	Lewis	Mr. Ray Cornish, Turin, N. Y.
Hammond, Rensselaer Falls, Benson Mines	St. Lawrence	Dr. Stanley W. Sayer, Gouverneur, N. Y.
Malone, Brushton	Franklin	Dr. Stanley W. Sayer, Gouverneur, N. Y.
Putnam	Washington	Miss Elizabeth M. Sweatt, care Red Cross, Putnam, N. Y.
West Hebron	Washington	Mr. Peter Burseno, West Hebron, N. Y.
Rockwood	Fulton	Mr. Chas. J. Flinn, Rockwood, N. Y.
Starkville	Herkimer	Mr. J. H. Hall, Starkville, N. Y.
Schuyler Lake	Otsego	Mr. Lee J. Chase, Schuyler Lake, N. Y.
Westford	Otsego	Mrs. A. P. Backus, Westford, N. Y.
West Davenport	Delaware	Mr. Chas. Everett, W. Davenport, N. Y.
Bloomville	Delaware	Mr. E. W. Simmons, Bloomville, N. Y.
Cannonsville	Delaware	Mr. L. F. Kipp, Cannonsville, N. Y.
Treadwell	Delaware	Mrs. C. L. Stoutenburg, Treadwell, N. Y.
Trout Creek	Delaware	Mr. N. A. Wilson, Trout Creek, N. Y.
Rock Rift	Delaware	Mr. H. R. Stoodly, Rock Rift, N. Y.
Halcottville	Delaware	Mr. George Kelly, Halcottville, N. Y.
Arena	Delaware	Mr. Wm. J. Krom, Jr., Arena, N. Y.
Cuba	Alleghany	Dr. B. R. Wakeman, Hornell, N. Y.
Stephentown	Rensselaer	Mrs. Carrie Chaloner, 62 Lancaster Street, Albany, N. Y.
Gardiner	Ulster	Mr. R. Eugene Mattison, Gardiner, N. Y.
Medford	Suffolk	Mr. Hal B. Fullerton, Medford, L. I.
Sterling	Cayuga	Mr. T. A. MacFarland, Sterling, N. Y.
West Leyden	Lewis	Mr. Henry Schmoker, West Leyden, N. Y.
Spafford	Onondaga	Mr. Charles McDaniels Homer, R. F. D. No. 3, N. Y.

A recent report of Miss Ellen Vanderzee, the first visiting nurse to be employed on an Indian Reservation in this section of the country, shows the great necessity for such work among the Indians. In addition to her regular duties, she is planning a social center for young women, and has aided in the distribution of clothing to families in need.

The Cayuga County Board of Supervisors has appropriated the sum of $5,000 for the establishment of a county laboratory at Auburn.

The announcement was made that under certain conditions Red Cross funds could be used to employ public health nurses. The local chapters in the towns of Waverly and East Rochester have already taken advantage of this ruling.

Improvements and additions to public water supply systems at Middleport, Newark, Coxsackie, Herkimer, Nassau, Pulaski, Athens, Westfield, Belmont and Gouverneur, some of which were deferred during the period of the war, are now being actively taken up.

The State Department of Health is planning to have committees organized in every municipality to coördinate the activities of health committees of chambers of commerce, women's clubs and the like. The first committee of its kind was recently formed at Norwich. It is expected that other municipalities will rapidly follow suit.

As a result of interviews by Sanitary Supervisor Ball with members of the Tuberculosis Committee of the Woman's Civic League of Plattsburg, sufficient funds were promised to secure the services of expert diagnosticians for two tuberculosis clinics each month for one year.

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North Carolina.—The following proclamation of Governor Bickett speaks for itself in defining the attitude of this executive with reference to the administration of public health:

PROCLAMATION

"A little child shall lead them." In this celestial saying of the Great Teacher there is a profound biological as well as spiritual truth. In the climb of the race to higher levels better babies lead the way. The crusade for better babies insures a double blessing. It will bring a hardier race, and then the finest traits in men and women come to flower when they are taking thought of these little ones.

Therefore, I, Thomas Walter Bickett, governor of North Carolina, do set apart the week beginning May 11, 1919, as Better Babies Week, and during this week urge our people to study and put into execution all the plans devised by the State Department of Health for preserving the lives and promoting the health of babies in North Carolina.

T. W. BICKETT,
Governor.

Vance County has made provision for a full-time county health department. The department has been arranged for by the coöperation of the county with the State and International Health Boards and a three-year plan of work has been agreed upon. The personnel will consist of a health officer, an office assistant and a nurse for rural sanitation and infant hygiene work. Vance will be one of the ten counties in which the State Board of Health is assisting in health work, the others being Davidson, Forsyth, Lenoir, Nash, Northampton, Pitt, Robeson, Rowan and Wilson.

With a desire to call the attention of school children in North Carolina to the large number of children under five who die annually in the state and to those conditions which contribute to their death,

and with the hope of attracting through the school children the attention of mothers and fathers to these facts and conditions, the Bureau of Infant Hygiene of the State Board of Health has offered a prize of $10 for the best composition, composed and written without assistance, giving ten contributing factors to diarrheal diseases of infants under two years of age, and the best methods of removing these conditions.

The State Board of Health of North Carolina calls attention publicly, in a bulletin widely circulated throughout the state, to the fact that the state laws protect cattle better than they do humans.

It is a significant fact that the laws of the state of North Carolina afford better protection to the live stock of the state than is provided for the citizens. Mr. M. W. Wall, farm demonstration agent for Northampton County, has just returned from Ohio with a carload of thoroughbred milk cows. Before being allowed to bring these cattle into the state he had to have them tested for tuberculosis. The state law prohibits any cattle with tuberculosis or any hogs with cholera from being brought into the state, requiring examinations to be made to prove that the live stock are free from these diseases. People suffering from tuberculosis and other infectious diseases, however, may come and go at will. Does this mean that North Carolina places a higher value on its live stock than upon its citizens?

The Bureau of Infant Hygiene sends out to all women who are interested literature regarding pregnancy, in the form of a set of nine letters, intended to encourage, instruct and advise mothers-to-be. Many physicians send in the names of patients for this literature.

North Carolina has adenoid clubs. The records of the Board of Health prove that there are not less than forty thousand children in the state between the ages of 6 and 12 who seriously need an operation for the removal of diseased tonsils and adenoids. Not more than 25 per cent of them are able to pay the fees charged by specialists. Fully 25 per cent are unable to pay anything at all. Thousands of them live from 50 to 200 miles from a good specialist. While all of the first-class specialists of the state willing are to help meet this condition, they cannot afford the sacrifice of time in operating on these children, one at a time at irregular periods.

To solve this problem, the Bureau of Medical Inspection of Schools of the State Board of Health has adopted the club plan of several children being operated on at the same time. The operations will generally be done at the county seat.

North Carolina has a goodly number of full-time county health officers. In some counties these officers are giving free "life extension" examinations. Persons with defects are referred to physicians for treatment. Persons of all ages are examined and numbers of cases of degeneration are detected and means taken to arrest the process. Other novelties in this enterprising state are "tonsil and adenoid clubs," in which children are operated upon in groups and dental offices are mounted on wheels for rural work.

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North Dakota.—The State Board has established a Bureau of Venereal Diseases and Dr. F. R. Smythe of Bismarck has been appointed chief.

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Ohio.—Through the coöperation of the Y. M. C. A. officials, a "keep fit" campaign is being conducted in Ohio high schools, illustrated lectures, exhibits, motion pictures and literature being used in this work. A woman lecturer is giving talks in schools and before organizations in the state. Rotary clubs are aiding in the campaign and have arranged for the showing of educational films in numerous cities.

A fight against trachoma is being waged in Portsmouth, Ohio, jointly by state and city officials. The campaign should be watched with interest by other Ohio River cities, in many of which trachoma is believed to be prevalent.

As a result of a survey which disclosed hundreds of trachoma cases among Portsmouth school children, a free clinic has been established. School children are being examined and all found with the disease are receiving treatment. It is estimated that there are not fewer than 1,000 trachoma cases in Portsmouth, and a similar situation is believed to exist in other sections which have received heavy immigration from the mountainous southern states where the disease has long been prevalent.

One and one-quarter millions of pamphlets, circulars and placards on venereal diseases and sex hygiene is the total output of the State Department of Health during the present fiscal year, ending July 1, in its campaign to educate Ohioans in regard to these subjects.

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Oklahoma.—The governor of Oklahoma has appointed other members to the Department of Public Health of the State, and the list now is: Dr. A. R. Lewis, commissioner; J. P. Folan, assistant health commissioner; Dr. J. C. Mahr, director of Bureau of Venereal Diseases, with W. A. Walker, chemist in charge, and C. B. Norris, bacteriologist in charge.

E. J. Webster, state registrar, has left the Department of Health and is now with the Corporation Commission.

Texas.—Dr. C. W. Goddard, president of the State Board of Health, has officially organized and installed three new bureaus of his department, Child Hygiene, Communicable Diseases and Public Health Education. Dr. Oscar Davis, assistant state health officer, has been appointed director of the bureau first named. The directors of the other two will be named later.

Texas has begun, through its State Board, an indexical health survey. This is under the direction of Dr. Douglas Largen of San Antonio and Dr. Howell of Brownwood. The work is to be begun at Wharton and later there will be similar centers established in the northern, eastern, central and western sections, so that the results may be representative of the whole state.

The following appointments have been made by the Texas Board: Dr. Oscar Davis, assistant state health officer; Dr. M. E. Parker, registrar of vital statistics; Mr. V. M. Ehlers, sanitary engineer; Dr. G. M. Graham, bacteriologist; Dr. H. C. Hall, director Bureau of Venereal Diseases; Miss Susie Barton, bookkeeper; Dr. C. W. Covington, director rural sanitation; Mr. George Loudermilk and Mr. Porter Loring, members State Embalming Board.

Virginia.—The Bureau of Vital Statistics reports that, in 1915, 34,870 births were reported by physicians and 23,313 by midwives, while 843 certificates did not state who attended the mother. Despite the fact that three fifths of the births in Virginia are reported by physicians and that the physician is frequently called to a large number of difficult cases after the patients have been weakened by long and unwise waiting, the majority of the 333 deaths of mothers during confinement in 1915 occurred in the practice of midwives. Furthermore, because they know nothing of rendering timely aid when a minute's delay may mean the death of the child, midwives have about twice as many children born dead as have physicians. On the other hand many infants, whom the midwives would consider dead, are restored by the prompt use of artificial respiration and the like by the physician.

The warning of these statistics is plain: Every expectant mother should have the attention of a trained physician.

Wisconsin.—*Racine Public Health Council.*—An account of the organization of a local health association in Racine, Wis., by H. L. Wilson, M. D., health officer of the city, is of interest, showing how easily such an organization may be effected in a live community. Dr. Wilson came upon the idea of a local public health society while attending the meeting of the American Public Health Association in Chicago. In the latter part of January twenty-five letters were sent to progressive, public-spirited men and women in Racine with reference to the new society. This was followed up by a personal call, and an early meeting was arranged for, and a committee appointed to draw up a constitution. Thinking that it was rather important to begin with a few enthusiastic members, Dr. Wilson did not try to get others until after the constitution had been adopted and, feeling it to be desirable to have small committees that will really work, none of them are larger than three members. The officers are prominent men and women of Racine; one is a union labor leader. About the middle of March the committees were appointed on housing, tuberculosis, child hygiene, industrial hygiene, medical and dental relief, recreation, hospitals, waste, and industrial safety.

The society has undertaken to interest the labor unions in the association, and they have become intensely interested. It is still too young to have achieved a great deal, but a start has been made. A prominent out-of-town speaker was engaged to speak for a whole week last month in the city. Dr. Wilson asserts his belief in the value of an organization of such kind in every city, which could do excellent work in connection with the local authorities and the American Public Health Association. He found it nowise difficult to organize the Racine Public Health Council, as the association is designated, in spite of the fact that the community has been until very recently very backward in its public health work. He looks upon the society as a permanent force towards the maintenance of a bigger and better public health department.

The Burlington, Wis., Public Health Association elected the following officers: President, Dr. W. E. White; vice-president, G. C. Rasch; secretary, Mrs. George Waller; treasurer, Mrs. Mary Newman.

Under the general charter recently adopted by the city of Sheboygan, Wis., the health board is abolished and its functions vested in a city health commissioner appointed by the mayor. Dr. J. E. Meany has been retained for the office.

Dr. G. W. Henika, Madison, deputy state health officer for the southern Wisconsin district, has been detailed by the State Board of Health to take charge of the establishment of clinics in Wisconsin cities in connection with the new bureau of venereal disease control.

Miss Mercy Rockwood of Oshkosh, a graduate of the course for public health instructors at Milwaukee, will join the staff of the bureau of venereal disease control in the State Board of Health for work in the social service division.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh and P. M. Holmes.

Women in Lead Industries.—Most of this bulletin is devoted to a description of lead industries and trade processes. The symptoms of lead poisoning are given, the question of individual susceptibility discussed, and a couple of pages are devoted to a summary of authoritative statements and statistics on lead poisoning in women. The lead compounds used and the mode of entrance into the human body are given. Under each industry the dangers of the prospective employment of women are emphasized. Occasionally an industry is already employing women in lead hazardous exposures.—Alice Hamilton, *U. S. Bureau of Labor Statistics, Bulletin No. 253*, February, 1919. (*E. R. H.*)

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Reconstruction of the Factory Medical Service.—The British Incorporated Association of Certifying Surgeons emphasizes the requirements of industrial hygiene including individual medical examination and practical knowledge of the conditions of employment. It believes that while a Ministry of Health should have certain powers of high control, the whole of the Factory Department should be transferred to the Ministry of Labour, since this ministry has the economic problems of labor under its care. There are twenty-nine recommendations, the most important, probably, being that outlining a practical method for coördinating the work of the certifying surgeon with that of the school medical officer and of colleagues in other districts. Other recommendations deal with the extension of national insurance to young persons; to the making of conditions respecting safety, care, and treatment; and to the method of payment for services and the inadequacy of present fees. Lastly, suggestions are made for increasing efficiency in the control of industrial diseases and poisonings. Copies of the report can be obtained upon application to Mr. E. A. Chambers, 16 John Dalton Street, Manchester.—*British Medical Journal*, Jan. 25, 1919, page 109. (*E. R. H.*)

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Miners' Safety and Health Almanac for 1919.—While this circular is addressed to miners, it contains much of general interest to the average person in addition to the usual almanac features. Precautions against the common diseases, the commoner insects, mine hygiene and sanitation, including methods of making coal dust harmless, the disposal of human excreta in rural districts, and an excellent collection of "Safety Hints and Historical Events," one for every day in the year are included.—R. C. Williams, *U. S. Bureau of Mines, Circular 24*, 1918. (*E. R. H.*)

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Training of Factory Health Officers.—The essentials of hygienic factory conditions and home conditions are stated. Safeguarding women employees through the woman supervisor is advocated. This woman should have a training in which the ideal course would be the first two years of the medical college—that part of the work that pertains to normal body functioning—supplemented by a course in labor problems and practical work in a factory. As we cannot wait for the graduates of such courses, the Women's Division of the Industrial Service Section of Ordnance has been planning an intensive course this summer (1918) at Mount Holyoke College. It is proposed to choose for training two groups of women: (1) Those who have already had successful experience as industrial supervisors or social workers, and supplement their practical experience by courses in physiology and hygiene; and (2) Graduates of physical education colleges whose training should be supplemented by a study of labor problems and practical work in factories. The health officer should have a factory uniform and be in good health herself. She should be fitted to advise employees, to organize gymnasium and drill classes if needed, to know housing opportunities, etc. The effort is to turn women from other vocations into industrial plants in order to increase woman power without injuring the woman, and so help in America's present crisis. (Several pages of discussion by employment managers follow.)—Dr. Kristine Mann, *Proceedings of the Employment Managers' Conference*, U. S. Bureau of Labor Statistics, Bulletin No. 247, January, 1919, pp. 11–18. (*E. R. H.*)

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Rest Periods for Industrial Workers.—The board sent out 388 schedules of inquiry on this subject and received 104 responses where rest periods had been tried, of which 15 had been discontinued. The conclusions are that rest periods have been found especially advantageous for workers on repetitive tasks demanding constant and close application; also they have proved valuable in heavy work and in work requiring constant standing or sitting. Rest periods eliminate time waste, improve disci-

pline, and cultivate regular habits. "While rest periods may be valuable supplementary means for the removal of fatigue, the fundamental means for its prevention are the provision of suitable working conditions such as proper lighting, heating, ventilation, installation of labor-saving devices and adaptation of the equipment to the worker." It is clearly indicated that for certain occupations a short recess in the work spell may be desirable from the standpoint of production. In other occupations, however, the nature of the work affords such opportunity for relaxation that regular rest periods are not required. The particular type and conditions of work are the determining factors.—*National Industrial Conference Board* (Boston), *Research Report No. 13*, January, 1919, 55 pp. (*E. R. H.*)

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Health Hazards of the Cloth Sponging Industry.—This bulletin deals with the unhealthful conditions surrounding workmen engaged in the process of sponging and steaming of cloth. Although this process is in use in every city and town of any size where cloth is made into garments, New York City has 65 such establishments which employ an average of 300 men,—no women being employed in any branch of this industry. The phases of the process are described. The cloth examiners inhale so-called "shod" or "fluff." They should wear a light mask. The sponger and his helper have hard labor in the carrying of rolls of cloth weighing up to 250 pounds, they work in a hot humid air, from which conditions they go to the cold of the street at quitting time. They are often immersed in steam. In but few instances does the wet bulb reading show less than 74° F., and in four shops it was 82° F. A large percentage of the men have worked in almost all the factories. There is a marked preponderance of the diseases of the respiratory tract, the most important of which is pulmonary tuberculosis. Correction consists in the removal of steam by hoods and ducts and the reduction of the unusual temperatures, as well as dressing rooms, drying quarters for clothing, and the installation of ventilating fans so that wet bulb temperatures do not exceed 75° F.—*New York State Dept. of Labor* (Albany), *Bulletin No. 89*, November 1918, 24 pp. (*E. R. H.*)

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Hours of Work Versus Output and Health.—The board made its study by schedules of inquiry in the silk manufacturing industry, replies being received from 71 establishments employing 30,095 workers. The information was supplemented by reports of field agents who visited a large number of mills so that in all, the findings are for 84 establishments. It was found that there were practically no records covering a sufficient period to permit of satisfactory study. While six establishments reported improvement, a large majority observed no noticeable change in health conditions when hours were shortened to 50, 52 or 54 hours per week from longer schedules. General factory conditions are reported upon as good to ideal although it is noted that the report of the U. S. Bureau of Labor Statistics, made some years ago, contained considerable criticism of improper ventilation. There is more likelihood of over-crowding in instances where small silk establishments conduct a few processes in rented space. The silk industry is characterized by a distinctly high death-rate from tuberculosis which is higher for female workers and is higher than the average rate for factory industries in general. While there is a strong presumption that conditions in the industry itself are partly responsible, these conditions have not been identified and it is certain that various collateral factors, such as nationality, personal habits, and living conditions have an important influence. Also, even in the United States, the proportion of young persons working in the silk industries is higher than in most factory industries, and higher than in the other textile industries. More information is wanted, especially the results of careful records of absenteeism, before it will be possible to present valid conclusions as to the effects of hours of work or any single factor on the health of workers.—*Natl. Ind. Conf. Board* (Boston), *Research Report No. 16*, March 1919, 54 pp. (*E. R. H.*)

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Industrial Lighting Codes.—Both the states of Wisconsin and Ohio, through their respective Industrial Commissions, have codified industrial lighting although that of Ohio is only a proposed code. That of Wisconsin was first issued in 1913 and the revised code, 1918. The Wisconsin one is exceptionally complete and instructive. It is well illustrated. Address, the respective *Industrial Commissions, Madison, Wisconsin* and *Columbus, Ohio.*

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Better Lighting Pays Big Dividends.—"An investigation of some 200 plants revealed the fact that efficient lighting increased the total output in such plants as steel mills 2 per cent, and in shoe factories and textile mills 10 per cent, while the total cost of furnishing a three-dollar-a-day workman with ample light for efficiency and safety is 1½ cents a day."—H. P. Heyne, *100% Efficiency Magazine*, April, 1919, page 106. (*E. R. H.*)

List of Labor Statistics.—A typewritten bulletin has been prepared showing the principal sources of statistics on labor which have been compiled by Federal and state agencies. These sources have been grouped under 18 headings, beginning with "Accident Compensation" and ending with "Welfare Work." The index comprises some 25 pages in which are listed principally industries, trades, and workers. A handy scheme of codifying enables one to locate quickly the source of the information desired, as well as a very brief abstract of the same, continued in the remaining 50 odd pages. (Two headings under which the abstractor looked, viz., "Occupational Diseases" and "Welfare Work," show the list not to be complete. It is evidently the idea to extend the list.)—*Central Bureau of Planning and Statistics*, Washington, D. C. (*E. R. H.*)

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Cost of Health Supervision in Industry.—A summary of the experience of 99 industrial concerns employing half a million people in 15 states is given. The average number of employees per plant was 5,005, the maximum 37,107, and the minimum 141. The distribution through various industries is representative. A summarizing table shows that the average cost per person per year is $2.50 and, if 4 plants are omitted which rendered unusual service such as giving both medical and surgical attention to their employees at the plant and in their homes, besides assuming the medical care of employees' families, the average cost for the 479,634 employees in the other 95 plants was $2.21. "The significance of these data, from a general viewpoint, is that such a large amount of medical and surgical service is possible at an average of only $2.21 per employee per year."—Magnus W. Alexander, Managing Director, Natl. Ind. Conf. Board. *Modern Hospital*, May, 1919, page 376–7. (*E. R. H.*)

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Treatment of Industrial Problems by Constructive Methods.—This bulletin outlines the purposes of the Working Conditions Service of the U. S. Department of Labor, the personnel of which is provided by the U. S. Public Health Service. Its functions are "to supply industries with this fundamental information and with a consulting service free from bias and partisan propaganda." There should be two beneficial results—increased production, and conservation of the lives and health of industrial workers. The service is in the relation to employers and employees of consulting expert and not that of arbiter or referee. The service has three divisions: Industrial Hygiene and Medicine, Safety Engineering, and Labor Administration. The personnel of the first division is composed of industrial physicians, hygienists, sanitarians, and specialty engineers. It offers its information and supplies its personnel upon application from employers or workmen's organizations. Its early objects are to standardize hygiene and systems of medical and surgical service for industries. An appeal is made to colleges, universities, and technical schools to provide instruction in industrial hygiene and medicine. A large enclosed folder shows the organization of the Working Conditions Service.—*U. S. Dept. of Labor*, Special Bulletin, 1919, 15 pp. (*E. R. H.*)

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Humanizing Industry.—The war revealed great industrial discontent in our country. The fault of the I. W. W. is not primarily with its members, but with our existing social and industrial system. Organized labor has the right to say here, as it is already saying in England, "We have done our bit and served our country. What is our country going to do for us?" The German government did everything for the working man before the war. Therefore, he was willing to make sacrifices for his country. A subconscious sense of gratitude underlay his patriotism and morale. Some people say if the working man's wages were raised, his health would be improved. It is still truer that if his health were improved, his wages would be increased. While this may not be seen in the case of the individual, yet if we increase even slightly the health and thereby the working power of the nation as a whole, the general work level will rise. Great returns are to be had in investments by employers in factory sanitation; by the working man in better food, housing, amusements, and books on health; and by the state in dispensaries, health departments, health insurance, etc. The working man also needs mental health. This depends on the satisfying of certain fundamental instincts. A human being whose instincts are balked becomes an enemy of society. This is the real reason for the I. W. W. He is the naughty boy of industry. We have not given him the outlet which he must have. The major instincts in the workman's life are self preservation, self expression or workmanship, self respect, loyalty upon which depends team spirit and pride, the instinct of home making (note the homeless migratory I. W. W.), the instinct of worship in which his daily work should appeal to his idealism and, finally, the play impulse. Of the seven instincts mentioned, only the instinct of self preservation, in which there is a securing of a living wage, is fairly well satisfied at present. We must have the rest of the septet. The employer must see in the workman his brother-man, with the same soul-hunger, needing the same soul-food.—Irving Fisher, *Annals Amer. Acad. Pol. and Soc. Science*, March, 1919, Vol. lxxxii, No. 171, pp. 83–90. (*E. R. H.*)

Health of Coal Miners.—In a letter to the (*London*) *Times*, Professor J. S. Haldane corrects the widespread mistake as to the alleged dangers to life and health in coal mining as compared with other occupations in Great Britain. An accompanying table shows the death-rates by age groups and compares coal miners with other occupations from which a not excessive death-rate is noted in each age period. However, the death-rate from accident is about double that in average occupations. Coal mining is now one of the most healthful occupations, although it could be made still more healthful.—London Letter, *Jour. A. M. A.*, April 26, 1919, page 1240. (*E. R. H.*)

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Teaching Laundry Work.—The Cincinnati General Hospital has a system of laundrying that prevents congestion, safeguards health and comfort of its employees, uses male and female workhouse inmates to fill out when other employees are not obtainable (these employees are really grateful for opportunities for decent work and contact with decent people and have never given any trouble), and finally gives instruction in laundry management to students of the University of Cincinnati who are interested in housheold economics. Many students have spent weeks in the summer vacation for this experience.—*Hospital Management*, April, 1919, Vol. VII, No. 3, page 28. (*E. R. H.*)

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Tuberculosis in an Industrial Community.—In this summary of the Framingham demonstration it is pointed out that this is a typical industrial American community, having rather favorable mortality and morbidity records when tuberculosis is compared to the registration area as a whole. On the other hand, the disease exists to a much greater degree than has hitherto been supposed. The application of the Framingham findings to the United States as a whole would indicate that there are about one million active cases in the country, and something over two million active and arrested cases. These figures are declared minimum estimates.—*Framingham* (*Mass.*) *Monograph No. 5*, March, 1919. (*E. R. H.*)

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Shipyard Occupations.—This special bulletin has been prepared to aid employment managers and interviewers in selecting workers and adjusting them to their jobs. It is also for the use of foremen. All the fundamental trades and occupations are listed, with the most commonly accepted names used as a standard. The handbook is especially designed for shipyards. There are approximately 180 standard shipyard occupations. An extended index to allied occupations enables the interviewer desiring to hire "Anglesmiths," for example, to see at a glance that he may consider "Architectural Iron Workers," "Blacksmiths," etc. In the body of the book a page is devoted to each occupation with a paragraph of description under each of eight regularly used headings. A supplement is to be issued covering shipyard occupations in which handicapped persons can be employed. "It is more economical and more expedient to spend five or even ten minutes in properly placing the new worker than it is to spend two hours or sometimes two days in trying to replace him."—*U. S. Shipping Board Emergency Fleet Corporation*, Philadelphia, Special Bulletin, 1918, 147 pp. (*E. R. H.*)

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Shop Lighting.—A pamphlet has been issued by the National Safety Council, describing the features to be aimed at in a lighting system, as well as the equipment used. Detailed designs for certain typical conditions are given, showing how the general principles are applied in actual practice. Natural lighting is considered. The pamphlet is replete with illustrations and diagrams.—*Safe Products No. 22*, National Safety Council. (*R. P. A.*)

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Decrease of Occupational Diseases in Great Britain.—During the eleven months ended November, 1918, the total number of cases of poisoning and of anthrax reported under the Factory and Workshop Act was 243, compared with 623 in the corresponding period of 1917. The number of deaths in 1918 was 25, compared with 79 in 1917. In addition, 35 cases of lead poisoning (including 20 deaths) among house painters and plumbers came to the knowledge of the Home Office during the eleven months ended November, 1918, compared with 53 cases (including 17 deaths) during the corresponding period of 1917.—*Labor Gazette*, London, December, 1918. (*R. P. A.*)

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Dust and Fume Control.—The electrostatic method of dust precipitation has proved highly successful, especially for the suppression of fine dust, which formerly was very difficult to control. The installation and operating costs are rather high, but all plants show a good saving even in such low value material as cement dust. A cement plant installing this equipment at a cost of $180,000 with operating expenses of $10,395 saved cement dust to the value of $25,000 and potash worth $50,000 in one year. The apparatus has also been successfully used to remove fine drops of liquid carried in gases such as the removal of acid fumes from the emissions of chemical plants.—U. S. Bureau of Labor Statistics, *Monthly Labor Review*, February, 1919. (*R. P. A.*)

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Complement Fixation Test in Tuberculosis.—The practical utility of the complement fixation test in the diagnosis of tuberculosis is limited by the fact that the highest percentage of results obtains in the obvious cases with tubercle bacilli in the sputum. With suspicious symptoms and signs a persistently positive reaction probably signifies an active tuberculosis. A positive reaction occurring with neither symptoms nor signs does not justify a diagnosis of active tuberculosis, though it is quite probable that there has been an active process recently. With frank signs and symptoms, yet with no tubercle bacilli in the sputum, a negative test cannot outweigh the clinical evidence, though in all such cases a Wassermann test should be made.—H. F. Stoll and L. Neuman, *Jour. A. M. A.*, 72, 1043 (1919).

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Colorimetric Standardization of the Cell Suspension in the Wassermann Reaction.—The cell suspension is usually estimated from the quantity of sediment in the centrifuge tube after the last washing. This procedure is not the best, for various reasons. In the Sahli hemoglobinometer is furnished a method for obtaining a cell suspension everywhere of the same strength. The complement will be found to titrate more evenly.—R. J. Pickard, *Jour. A. M. A.*, 72, 1074 (1919).

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Simple Method for the Defibrination of Blood.—The apparatus consists of an ordinary Erlenmeyer flask with a cork to fit, and a piece of looped wire, preferably copper, since copper will not rust and is readily cleaned. After sufficient shaking, the wire is removed by withdrawing the stopper, and the fibrin will be found closely adhered to the mesh, leaving the defibrinated blood within the flask. An illustration of the simple apparatus is given.—F. H. Reynolds, *Jour. A. M. A.*, 72, 1075 (1919).

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Medium for Prolonging the Viability of the Meningococcus.—The author describes a yeast medium simple to prepare and which prolongs the viability of the meningococcus for at least a month.

Ten gm. of bakers' or brewers' yeast are macerated in 100 cc. of water for twenty minutes, and the suspension is steamed for two hours, the temperature not exceeding 100° C. It is then clarified by adding Merck's dialyzed iron (5 per cent ferric oxid) and filtering through glass wool. The first step in this clarification is not necessary unless a specially transparent medium is desired. To 1 per cent agar containing 2 per cent peptone and 0.4 per cent potassium phosphate is added an equal amount of the prepared yeast. The reaction is adjusted to $P_H = 7.6$, which, after heating, is reduced to 7.4. The medium is distributed, 10 cc. in each tube, and is autoclaved for one-half hour at fifteen pounds. The result is a semisolid medium which is seeded by making stabs into it with a considerable amount of the inoculum. The tubes are sealed with paraffin or sealing wax and are kept at 37° C. until required.—Eberson, F., *Jour. A. M. A.*, 72, 852 (1919). (*D. G.*)

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New Type of Paratyphoid.—A new type of paratyphoid bacillus has been isolated from nineteen cases among Serbians, Greeks and Bulgarians. The organism behaves in cultures exactly as do the common paratyphoid bacilli and has a similar morphology, but it is differentiated by entirely failing to be agglutinated by antiparatyphoid A or B serums, while it is readily agglutinated by its own antiserum even in high dilution. The cases from which it has been isolated have differed clinically in no way from typical cases of paratyphoid B infection.—L. Hirschfeld, *Lancet* (*Engl.*) Feb. 22, 1919; *N. Y. Med. Jour.*, April 12, 1919.

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Etiological Agent of Influenza.—The authors describe with abundant detail groups of granulations which they were able to stain in histologic sections from subjects dying from influenza. Each granule measured from 0.3 to 0.6 microns in diameter. These granular bodies are offered as the etiological agent of influenza, although the statements are not backed up by culture or inoculation experiments. The problematical organism is called *Ænigmoplasma influenzæ* Prell.—A. Binder and H. Prell, *Muenchen. med. Wochschr.*, Dec. 10, 1918; *Med. Rec.*, 95, 618 (1919).

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Effect of Certain Magnesium Salts on Pyogenic and Other Bacteria.—Occasionally cosmetics for the removal of pimples from the face contain a concentrated solution of magnesium sulfate. The beneficial effect of this solution is shown not to be due to any bactericidal action on *Staphylococcus aureus*. Streptococcus skin infections, however, may be inhibited if any concentration of magnesium sulfate

be used externally. Magnesium chloride had a very marked inhibitory effect on the growth of *S. aureus, B. coli, B. typhosus* and *P. pyocyaneus* which suggests that it may be substituted for magnesium sulfate under certain conditions.—Zae Northrup, *Jour. Inf. Dis.*, 24, 170 (1919).

✱

Etiology of Influenza.—The number of experiments carried out by the authors, according to their own statement, is too small to justify the drawing of final conclusions. However, the number of positive results obtained would seem to be significant. The pathological lesions in what may be called experimental influenza in animals closely resemble those seen in the lungs of men. There is some evidence in favor of the view that the passage of the virus from one animal to another may raise its virulence. Inoculation of the filtered and unfiltered sputum taken from cases of influenza, especially at an early stage of the disease, has been found to produce lesions in the lungs in a high proportion of inoculated animals. The inoculation of blood may not always produce such striking results. A minute microörganism of coccoid shape may be grown by Noguchi's cultural method from the kidney of infected animals, the filtrates of lung tissue, and the filtered sputum from cases of influenza. The cultures, when inoculated into animals, produce typical "experimental influenza" lesions. There are very strong grounds for considering that the organism isolated is capable of passing through a filter, and that it is in all probability the cause of influenza as seen today. —H. Graeme Gibson and J. I. Connor, *Brit. Med. Jour.* No. 3038, March 22, 1919.

✱

Rocky Mountain Spotted Fever in the Domestic Rabbit.—The domestic rabbit is susceptible to infection with Rocky Mountain spotted fever (a) by the bite of infected ticks; (b) by intraperitoneal injection of infectious blood from guinea-pigs or other rabbits. The susceptibility is less marked and more variable than in the case of the guinea-pig. The lesions produced are essentially the same as those found in the case of the guinea-pig, monkey or man. The presence of the small diplococcoid organism described by Wolbach, in connection with this disease, can be demonstrated in infected rabbits. Immunity is not transmitted from parents to offspring in this species.—N. C. Foot, *Jour. Med. Res.*, 39, 495 (1919).

✱

Picramic Acid for Permanent Color Standards in Nesslerization.—There are various serious objections to the use of ammonium salts and Nessler's reagent for colorimetric determination of nitrogen. Accordingly the authors suggest the use of picramic acid: 0.1 gm. of picramic acid and 0.2 gm. of anhydrous sodium carbonate are dissolved in 30 cc. of warm distilled water and made up to 1 liter. The color is practically permanent. All color comparisons in which Nessler's test can be used can just as readily be made by picramic acid. The chemical is easily prepared from picric acid by a modified method given in the *Jour. Biol. Chem.*, 35, 565 (1918).—G. Egerer and F. Ford, *Jour. Lab. Clin. Med.*, 4, 439 (1919).

✱

Lead Peroxide Reaction with Spinal Fluid.—A suspension of lead peroxide is not affected by normal spinal fluids. Varying amounts of precipitation and agglutination occur regularly with abnormal fluids. Early and complete precipitation is observed in the acute types of meningitis.—E. Steinfield, *Jour. Lab. Clin. Med.*, 4, 445 (1919).

✱

Action of Bile on Dysentery Bacilli.—Disappearance of dysentery bacilli from the stools of patients was observed to coincide with the flow of bile to the intestinal canal. Experiments were made in vitro to determine whether bile exerts an injurious effect on dysentery bacilli. Ox bile heated at 120° C. was inoculated with a number of strains of Shiga, Hiss and Flexner bacilli; after a certain period at 37° C. approximately 1 cc. of the bile was used to inoculate bouillon and gelose. Even forty-eight hours' contact with the bile failed to prevent growth of the Hiss and Flexner bacilli. Seven out of the fourteen strains of Shiga bacilli failed to yield a culture after contact with bile.—S. Marbais, *Compt. Rend. Soc. Biol.*, 81, 1136 (1918); *Chem. Abstr.*, 13, 854 (1919).

✱

Attenuation of Tubercle Bacilli.—The author records the results of consecutive cultivation of single strains of tubercle bacilli of human, bovine and avian types on artificial media for twelve years. All three strains were highly virulent when isolated, but during the years of their artificial cultivation each has progressively lost in virulence so as now to be almost wholly avirulent, though each has preserved its other characteristics unaltered. It is the author's intention to experiment with these avirulent organisms in the treatment of human tuberculosis.—Nathan Raw, *Lancet (Engl.)*, March 8, 1919; *N. Y. Med. Jour.*, April 26, 1919.

✱

Bacillus of Spanish Influenza.—The organism has a powerful elective affinity for the respiratory tract of the laboratory animals, and the lesions are the same as those found in cases of influenza in man. The organism may be recovered again from the lesion of dead animals. The organism, though of

the morphology of Pfeiffer's bacillus, is not the same. The action of the organism is strictly specific and does not depend upon secondary invaders. The disease of the recent epidemic is not influenza of the form well known and of past epidemics.—A. J. Hinkelmann and C. P Hinkelmann, *N. Y. Med. Jour.*, 49, 712 (1919).

✻

On the Nutrition of the Tubercle Bacillus.—Experiments were undertaken to clear up some of the fundamentals of the tubercle bacillus' general metabolism. The growth of the organism was studied on simple media of definite chemical composition. The results of the experiments indicate that the tubercle bacillus hydrolyzes proteoses and peptones with the formation of amino acids, and deaminizes the latter. The course of deaminization is obscure, but the failure of utilization, in the presence of glycerol, of the ammonium salts of the fatty, ketone, and hydroxy acids which might result, suggests that none of these is the normal product of the process. On the other hand the ready utilization of amines, alcohols, and of ammonium salts of dibasic acids, suggests a more likely route, in which the monobasic acids, which in some way seem inhibitory, are not formed. The theory is advanced that the amino acids (that is, those studied—glycocoll and alanine) break up into ammonia and alcohols, perhaps with amines as intermediate stages, that hydrax malonic acid (tartronic acid) is formed in the medium through the oxidation of glycerol, and that ammonium malonate and malonic ester or closely allied compounds are of great importance in the synthesis of the bacillus' organic substance.—Long, E. R., *Amer. Rev. of Tub.*, April, 1919, 86. (*D. G.*)

✻

Results of Prophylactic Vaccination against Pneumonia at Camp Wheeler.—Thirteen thousand, four hundred and sixty men, or about 80 per cent of the entire camp strength, were vaccinated against pneumonia with pneumococcus lipovaccine. Both the local and general reactions produced by the vaccine were usually mild. Most of the troops inoculated were under observation for two or three months after vaccination. If all cases of pneumonia that developed within one week after vaccination are excluded from the vaccinated group, there remain only eight cases of pneumonia produced by fixed types, and these were all secondary to severe attacks of influenza. The weekly incidence rate for pneumonia (all types) among the vaccinated troops was conspicuously lower than that for the unvaccinated troops. The pneumonia incidence rate per 1,000 men during the period of the experiment was twice as high for unvaccinated recruits as for vaccinated recruits, and nearly seven times as high for unvaccinated seasoned men as for vaccinated seasoned men. The results of pneumococcus vaccination at Camp Wheeler have not been so striking as those obtained at Camp Upton in 1918, largely on account of the influenza epidemic. The results are encouraging nevertheless.—R. L. Cecil and H. F. Vaughan, *Jour. Exp. Med.*, 29, 457 (1919).

✻

Globulin Test in Spinal Fluid for Use at the Bedside.—A suitable reagent for the globulin test in spinal fluid may be prepared by dissolving 3 gm. of anhydrous potassium dihydrogen phosphate in 100 cc. of distilled water and adding 0.05 cc. of glacial acetic acid. In making the test, 0.2 cc. of the spinal fluid plus 0.6 cc. of the reagent are mixed in a small agglutination tube and placed in boiling water for six minutes. This test is slightly less delicate than the Noguchi test, but offers some advantages over the latter for field work.—H. L. Amoss, *A. M. A.*, 72, 1289 (1919).

✻

Method of Fumigation with Bleach-Formalin.—The use of bleaching powder and formalin in fumigating rooms has been proposed by the author. By the aid of a new and convenient apparatus, this new method has been compared quantitatively with the permanganate-formalin and with the dichromate-formalin methods. The comparison leads to the conclusion that by using 620 gm. bleaching powder and 800 cc. formalin for each 1,000 cu. ft. to be fumigated, as much formaldehyde gas will be thrown off into the room as by the use of 250 gm. permanganate and 500 cc. formalin, and at only one-sixth the cost. The bleach-formalin method is said to be only one-third as costly as the dichromate-formalin method. It has been shown that the printed objections to the bleach-formalin method are without foundation in fact and are contradicted both by experiment and in practice.—Horn, D. W., *Jour. Ind. and Eng. Chem.*, Feb., 1919, 126. (*D. G.*)

✻

A Physiological Explanation of Agglutination.—Why do bacteria, emulsioned in physiological salt solution or in any other indifferent liquid, remain for a long time in the state of suspension? According to Mansfield, this is because they are provided with a "colloid protector." The specific serum, which agglutinates these bacteria, by breaking up this state of suspension, effects this by reason of a fermentative action which decomposes this colloid protector. This is the dominant idea of the author. The author begins by showing a large analogy between the mode of action of the agglutinins and that of the ferments. He cites in particular (a) their ability to act in very small amounts upon large quantities of substance; (b) the non-destructibility

of the ferments and their possible recuperation after they have been absorbed; (c) their optimum action at 30–50° C.; (d) the necessity for the presence of salts; and (e) the impossibility of obtaining the ferments in the pure state, etc., all characters common to agglutinins and to ferments in general. The hypothesis evolved by Mansfield concerning the fermentative nature of the agglutinins is not, therefore, in opposition to known facts.

With respect to direct evidence in favor of the fermentative character of the agglutinins, the author has furnished this through his studies, on the one hand, upon the relations between the concentration of the agglutinins and the rapidity of the reaction, and on the other hand, upon the rapidity of the agglutination reaction at different temperatures. He found confirmation of his hypothesis also in the procedure of Pregl, which permits the demonstration in the agglutinating serum, with the aid of the refractometer, of the presence of an active ferment towards the colloid protector in question, and which plays the agglutinogenic rôle with respect to the agglutinating ferment. When a bacterial emulsion is filtered through a bougie and a rabbit is injected with the filtrate, it will be constantly observed after some time, that its serum contains a ferment which is active towards the colloid protector. In substance, when a bacterial emulsion is agglutinated with its specific serum, that is to say, when it has been submitted to the fermentative action of the agglutinin, and is then filtered through a bougie, it will be found that the colloid protector is no longer present; the filtrate injected into the rabbit is no longer capable of causing the formation of agglutinin.

Such are the arguments which Mansfield considers to be sufficiently sound to sustain the belief in the fermentative nature of the agglutinins. G. Mansfield, *Ztschr. f. Immunitätsforsch.*, 27, 197–212 (1918).

*

New Improvement of the Wassermann Reaction.—One of the disadvantages of the sero-reaction of syphilis lies in the restraining action peculiar to the serum itself (anticomplementary). Very recently Mandelbaum claimed to have found the means of avoiding this difficulty, simply by inactivating the serum to be examined by heating it at 56° for thirty minutes, after having diluted it with physiological salt solution (0.5 cc. of serum + 2 cc. of saline). By subjecting a series of human restraining serums to examination with the ordinary reaction and with the reaction as modified by Mandelbaum, Hatziwassilin found that in certain cases the heating of the previously diluted serum was useful; unfortunately, however, there are serums the anticomplementary action of which is not at all influenced by the technic of Mandelbaum.—Hatziwassilin, *München. med. Wchnschr.*, 65, 798 (1918).

*

Experience with Protective Inoculation against Typhus Exanthematicus.—The causal agent of typhus being unknown, vaccinations have been carried out with the virulent blood of patients; this blood was defibrinated and heated at 60° C. for thirty minutes. The doses of the vaccine injected at three sittings were 2 cc. on the first day, 2 cc. on the fourth day and 4 cc. on the seventh day. In order to prevent contamination, the authors added 0.2 per cent of formalin before heating the blood. In three series of guinea-pigs, the vaccine in question was injected intraperitoneally, under conditions analogous to those practiced upon man, 0.5 cc. on the first day, 0.5 cc. on the fourth day and 1 cc. on the seventh day. Then at the expiration of variable intervals, ten, twenty-one and twenty-nine days, they were inoculated, along with controls, with 3 cc. of virulent human blood. It was shown from these experiments that when the inoculation was made ten days after the last vaccinating injection the animals showed an elevation of temperature indicating that the immunity was not very substantial. The results of the vaccinations were much better when the interval between the last vaccinating injection and the inoculation of the virus was twenty-one days, and still better, twenty-nine days. The authors add, however, that these experiments should not be regarded as decisive, since the number of guinea-pigs used for these experiments was not sufficiently large.

Six hundred and fifty persons were vaccinated by means of the formalined and heated blood; none showed the Weil-Felix reaction; the examination of the blood was made ten and fourteen days after the last injection of the vaccine. Of these 650 vaccinated persons, 21 contracted typhus; 6 contracted the disease within fourteen days following the vaccinations, thus during the incubation of typhus, which is from twelve to twenty days; 4 had only received two vaccinating injections, instead of three. In addition to these 10 cases, which can be rigidly excluded, there were 11 persons who contracted the disease, notwithstanding they were vaccinated under favorable conditions. The authors recognize that the immunity conferred by the vaccine is not absolutely certain. They have the impression that the vaccine exerts a favorable influence upon morbidity and mortality, but are of the opinion that its employment should not lessen the employment of usual measures, particularly delousing and lice eradication measures.—Mollers and Wolff, *Deutsche med. Wchnschr.*, 44, 676 (1918).

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NARCOTIC DRUG ADDICTION: A PUBLIC HEALTH PROBLEM.

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Read before Public Health Administration Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

Dr. Bishop tells us that drug addicts are sick men and not criminals. They ought to receive treatment instead of being sent to jail. Medical, legislative and popular ideas are all in error. He calls for a revolution to wake up the doctors and educate the people.

IN 1916, in a paper on "The Rational Handling of the Narcotic Addict," prepared at the request of Martin I. Wilbert of the United States Public Health Service, and read at the annual meeting of the American Medical Association, I stated in conclusion,—

"There is urgent need for widespread and early education of the medical profession, legislators, administrative authorities and laity into the facts of addiction-disease. Until narcotic addiction is widely appreciated and taught as a definite disease, and facilities are provided for clinical demonstration and instruction and for laboratory experimentation, we cannot hope for intelligent handling of the narcotic addict, nor for solution of the national drug problem."

The need for the above is no less today than it was when my paper was written. Education concerning the material physical facts of addiction-disease is the fundamental essential in arresting further unnecessary spread of narcotic drug addiction, and in repairing as far as possible, the damage already done.

Neglect of this fundamental need of education concerning the physical facts of addiction-disease has been the most important factor in the continued spread of this disease, in the development of the present narcotic drug situation, and in the failure of most strenuous efforts at its control.

Delay in the accomplishment of this education is responsible for much of what seemed to be erroneous and unfortunate in legislation and administration, and has left us today after years of effort along other lines, with practically no competent nor adequate facilities for instruction or treatment, nor common ground of authoritatively established and generally appreciated fact as a basis for competent and intelligent procedure.

As a definite clinical entity of physical disease, addiction is practically untaught in the school and unappreciated by the average medical man. The medical profession has as a whole ignored the subject as a clinical study or laboratory investigation.

Whatever education has reached the practitioner has been, as a rule, the expression of one or another special school of thought advocating one or another special method or mode of procedure. Very little is widely disseminated of fundamental physiology, pathology, symptomatology, and physical phenomena in this disease of narcotic addiction.

Each school or class of workers urges and teaches whatever methods or courses of procedure are suggested by its own special experiences and theories. Each school or class is intolerant of the ideas and opinions of the others, and each is bent upon the furtherance of measures which it thinks at any particular time will tend to assist in its particular field or phase of the problem, irrespective of their reactions on other fields or phases or their influence upon the situation as a whole.

Depending upon the special angle or approach of the observer or worker, and upon the problems and manifestations of the particular phase or aspect of the situation which he encounters, and upon his personal temperament, training, environment and experience are his opinions and conceptions formed. There is at present no machinery in an authoritative, disinterested position, which is concerned with the competent investigation, evaluation and correlation of what is spoken, written or practiced as fact or theory or remedial procedure, in a widespread disease condition seriously affecting and endangering public health and civic and economic welfare.

That narcotic drug addiction is a condition existing widespread among our population and increasing in extent is, in view of the revelations of the past few years, no longer a matter for argument. At least that much has been accomplished. It has been stated and may not be far from true that there are as many sufferers from narcotic drug addiction as from tuberculosis.

It is now beyond all question that narcotic drug addiction has existed for many years, an entirely inadequately appreciated medical and public health problem of great importance.

It is now a matter of established fact that description of narcotic drug addiction as "habit," "vice," "morbid appetite," etc., absolutely fails to give any competent conception of its true characteristics, and clinical phenomena.

That the terms "drug habituate" or "drug fiend" have been so generally applied to and so commonly accepted as descriptive of those afflicted with this condition is conclusive proof of general scientific neglect of it, of apathy and indifference towards it, and of widespread ignorance concerning it.

It is now a matter of established record and proof that narcotic drug addiction is fundamentally a physical disease condition presenting definite and constant clinical symptoms and signs and invariable and characteristic physical phenomena, and that it has associated with it,—and especially with its unskillful handling,—some of the most agonizing suffering known to humanity.

No theory of drug addiction based on inherent mental degeneracy or deterioration,—no exposition or explanation of circumstances, situations or conditions, associated with or incidental to narcotic drug addiction can any longer, in the light of easily available and easily corroborated testimony or record and competent authority, be regarded as worthy

of any consideration which ignores or does not completely take into account the established facts and the physical sufferings of narcotic drug addiction-disease.

It can be incontrovertably established that the class and personal manifestations of those, degenerate or defective, psychically subnormal or abnormal, who happen to have developed this addiction-disease, and of the true criminal or "underworld" types which have acquired it, are not intrinsic to the disease nor characteristic of sufferers from it.

Addiction-disease has existed in mentally, morally and psychically normal individuals in all walks of life to a much greater extent than it has in the so-called "underworld" upon which attention and spectacular publicity has so largely been focused.

It is unfortunate that the attention of the public and even of the scientific professions, has been distracted by and focused upon spectacular manifestations and irresponsible actions exhibited by some of those who are addicted to narcotics, and in whom in most cases the irresponsibility antedated the addiction or was simply a coincident result of environment and circumstances of life and not a characteristic manifestation of narcotic drug use.

Irresponsibility, degeneracy and deterioration are not essential or even characteristic attributes of the narcotic drug addict. They are entirely absent in very large numbers if not a majority of those afflicted with this disease, many of whom, forced to conceal their affliction because of popular conception of this condition and lack of available competent handling of it, occupy positions of highest responsibility, great personal achievement, honor and respect. Some of our greatest and finest and best men and women are unsuspected sufferers from addiction-disease, constantly seeking relief and understanding help, praying for the day when enlightenment shall come, and they if revealed as addicted, shall not be stigmatized as "dope-fiends" and classed with criminals and degenerates to their social, personal and economic disgrace and detriment.

These worthy people are not psychiatric nor correctional cases nor problems. They have contracted their addiction-disease through medical and therapeutic administration of narcotic drugs, absolutely through no fault nor consciousness of their own. Their addiction is solely and absolutely a physical condition,—the body mechanism invariably established in any red-blooded animal by the sufficiently prolonged administration of opiate drugs.

The presence of a physical mechansim in the development and production of some substance circulating in the blood and causing the symptoms and physical signs and phenomena of addiction-disease must now be scientifically accepted as the best explanation of the condition. It is indicated by every clinical manifestation, and has been demonstrated by competent and authoritative and responsible experimentation upon laboratory animals. I discussed it in detail as a "hypothetical antidotal toxic substance" in my paper "Narcotic Addiction, A Systemic Disease Condition," *Journal of the American Medical Association*, Feb. 8, 1913, and shall not argue it in this paper.

The sooner the established facts of the fundamental physical basis and reactions of the addiction-state become matters of medical and public health education, the earlier there will be a rational and practical consideration of narcotic addiction and a beginning of solution of the narcotic drug problem.

Lack of knowledge of the fundamental

and constant physical reactions and phenomena, and of the characteristic clinical manifestations of this disease, and of the physical suffering of drug deprivation is in a large measure responsible for failure in its therapeutic handling in the past, and indirectly responsible for whatever is unjust and misdirected in the framing of the various laws, and also for a great part of whatever incompetency and lack of wisdom has appeared in their administration.

Lack of knowledge of the disease facts of narcotic addiction is also responsible for the practical absence of widespread provision for humane and intelligent handling, for much of the jeopardy and fear of the medical practitioner towards these cases, and for the existence of conditions resulting in the rapid growth and increase of the worst evils of the present situation.

The worst evils of the narcotic situation are not, as is widely taught, rooted in the inherent depravity and moral weakness of those addicted. They find their origin in opportunity, created by ignorance and neglect and fear, for commercial and other exploitation of the physical suffering resulting from denial of narcotic drug to one addicted. The many widely advertised and intrinsically unworthy "drug cures" derive their prosperity from the desperate desire of the narcotic addict to be cured of the condition which may at any time cause him intense physical suffering. The worst evil of the narcotic situation in the past few years, and especially since the enforcement of restrictive legislation without provisions for education and adequate treatment, is the rapid increase and spread of criminal and underworld and illicit traffic in narcotic drugs. This exists because conditions have been created which make smuggling and street peddling and criminal and illicit traffic tremendously profitable, and it would not exist otherwise. It is simply and plainly the exploitation of human suffering by the supplying to desperate and diseased individuals at any price which may be demanded, one of the necessities of their immediate existence.

Such exploitation would become unprofitable if adequate and humane provisions were available for treatment, and if the average practitioner of medicine was familiar with and knew how to handle addiction-disease, and was encouraged to admit cases to his practice, instead of being in constant uncertainty as to the meaning and possible interpretations and administrations of the laws.

The financial possibilities of commercial exploitation of the sufferings of addiction-disease are responsible for the tremendous increase of late of narcotic addiction, of non-medical or non-therapeutic origin, among the youth.

In ignorance of actual physical results, not knowing nor ever having been told that they are contracting a disease of torturing manifestations, actuated by curiosity and search for adventure, in some cases stimulated by unfortunate spectacular publicity, the youths fall easy prey to the agents male and female of the drug trafficker. The traffickers' intended consummation is reached when these youths finally become to their surprise and consternation, through the development of addiction-disease, and physical dependence upon narcotic drug, enforced and permanent customers and in some cases virtual slaves.

Those who are interested in prostitution and in so-called "white-slavery" would do well to turn their attention to the chains forged by the suffering and fear of suffering experienced by those who have developed narcotic drug-disease.

It is this class of youthful addicts that

has so alarmingly increased since the enforcement of the various narcotic laws. For this increase, however, the laws themselves are not so much to be blamed as is the totally inadequate meeting of the clinical and therapeutic and educational needs of the situation. There has been practically no organized scientific, medical or public health activity, so far as I know, directed towards the clinical and laboratory investigation of this disease,—towards a dispassionate review, analysis and testing out of the truths and errors of its literature,—towards an investigation of the scientific and other qualifications and experience of those whose utterances or writings influence medical and lay opinion and action, towards the establishing of pathological and physical facts and reactions and of clinical symptomatology and phenomena as fundamental bases for its rational handling and therapeutics, and for practical education of the public as to its sufferings and dangers.

The literature, theory and practice of narcotic addiction and its handling, legislative, administrative and medical, is full of conflicting and irreconcilable statements and beliefs which have never been evaluated nor correlated by any authoritative and competent body. These various beliefs are held by workers in various fields of the subject. All of them contain elements of truth and more or less practical fact, especially when applied to the special types of individuals upon whom they were observed. All of them are unquestionably partly wrong. They are the theories and opinions of special observers and all have their value properly interpreted and applied according to indications in individual cases.

All sorts and conditions of people are afflicted with drug addiction. From the infant newly-born of an addicted mother, showing the physical symptomatology of body need for opiate at or a few hours after birth, to the ancient veteran of our Civil War, addicted from therapeutic administration in that struggle, no age is exempt. From the judge on the bench, the minister in the pulpit, the doctor, the lawyer, the man of business and large affairs and the industrial worker, to the defective and degenerate outcast of society, no class or social scale is left untouched. No type of individual furnishes the narcotic addict. He or she is simply the individual of any type or class who in one way or another has contracted addiction-disease.

So far as has been experimentally ascertained, to my knowledge, no red-blooded animal escapes the physical manifestations and characteristic reactions and phenomena of addiction-disease after sufficiently prolonged administration of opiate drugs.

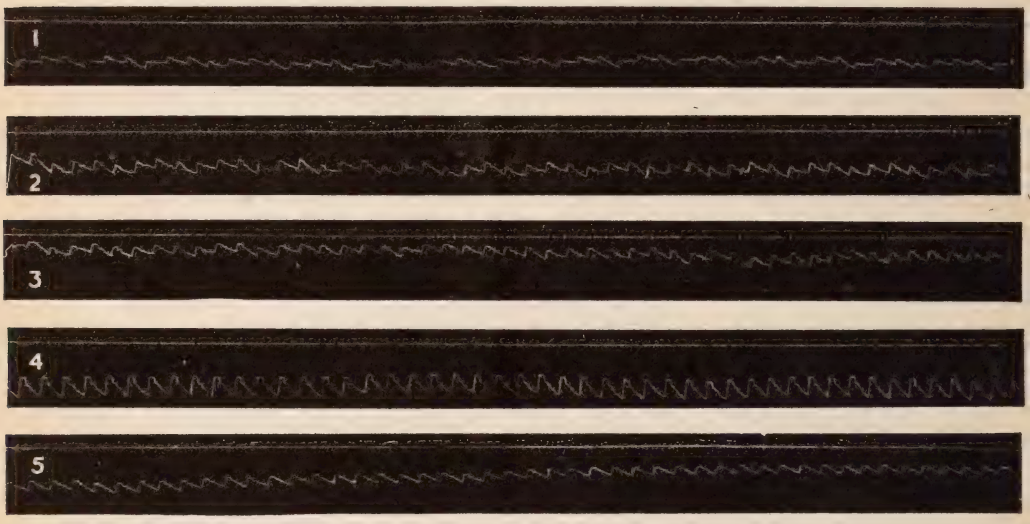
Constant and definite and easily corroborated evidence of some of the physical phenomena are readily obtained, measured and demonstrated by instruments of clinical precision and record. As one example I am submitting herewith sphygmographic tracings with explanatory notations, made upon a narcotic addict in withdrawal, showing the effect of body need for opiate upon the circulation, and the action of opiate in restoring that circulation. These tracings are not unlike those of other clinicians who have studied addiction-disease, and parallel those of laboratory workers upon addicted experimental animals. (See chart, page 486.)

We are in a stage of transition in our concepts of, attitude towards, and handling of the narcotic addict. Serious consideration of drug addiction as a problem of clinical and internal medicine, and of experimental laboratory research is a comparatively new thing to a majority of the medical profession, and of course

also to legislators and administrators. Accustomed to regard addiction in the light of habit or appetite or morbid mentality,—legal and administrative activities have now forced upon our consideration scores of unsuspected sufferers from this disease who could not by any stretch of wildest imagination be regarded as mentally abnormal or subnormal.

These people have compelled us to revise our conception of the narcotic addict, and to question ourselves as to the necessity for their continued addiction

CHART.



Sphygmographic Tracings Showing the Physical Organic Dependence upon Opiate Administration in the Circulation of a Narcotic Drug Addict

Patient 63 years of age convalescent from pneumonia with persisting sequelae of marked circulatory deficiency which did not respond to the administration of the usual circulatory stimulants even in large doses. I was called in consultation.

Found patient to be a narcotic addict of many years standing, his addiction developing as a result of physician's medication during illness. Addiction had been unsuspected.

During recent pneumonia and subsequent to it, morphine had been administered in therapeutic doses for relief of pain, restlessness and sleeplessness. The daily average of such medication just prior to these tracings was about one-half grain a day. The last dose prior to these tracings was one-eighth of a grain given at 3:30 p. m.

I first saw the patient and made No. 1 tracing about 6:00 p. m.

Tracings No. 2, No. 3 and No. 4 were made at about 15 minute intervals. They were made following experimental hypodermic injections of morphine sulphate to determine the extent of organic dependence upon opiate medication and the amount of opiate needed to restore organic function and tone.

Tracing No. 4, taking into consideration the asthenic and exhaustion condition of the patient, shows full support to circulation with some overaction.

Tracing No. 5 was taken about an hour or so after tracing No. 4 to determine the holding power of the dosage administered, after the circulation had quieted down from the immediate action of the opiate medication. This tracing interpreted and considered together with the clinical manifestations at the time was decided to be about normal for that patient at that time.

Patient would have died, not from unresolved pneumonia with cardiac complications, but from untreated addiction-disease.

On balanced and indicated daily morphine dosage, patient made very rapid recovery and has continued well and active.

over the years of their addiction. What shall we do with them, and what can we do for them? They certainly are not fit subjects for custodial and correctional handling, and if such were forced upon them they would be seriously harmed, personally, socially, economically, and physically. Our equals or betters, we certainly cannot force them to the associations of the public administrative bureaus and places of confinement.

Where is the blame for their continued addiction? Certainly not because of lack of effort on their part. Addicted for years they have tried one after another of the various and diverse treatments and so-called "cures" without success or ultimate relief. Is the blame theirs for lack of success and cure, or has there been something wrong in our treatment and handling of them? Did we know enough about addiction-disease to treat them intelligently and to exercise upon their cases the same professional skill and technical ability that we have been educated and trained to apply to other diseases? In the light of available clinical information and study and in the light of competent laboratory research we are forced as a profession to admit that we have not treated our addiction sufferers with sympathetic understanding and clinical competency and that the blame for the past failure to control the narcotic drug problem rests largely upon the educational inadequacy of our medical profession, and institutions of scientific and public health education.

The remedy is obvious, and the duty to immediate activity is obvious. Education,—scientific, medical, lay, and public health education is the lacking element in the narcotic drug problem. Appreciation of addiction-disease at the earliest possible moment, widespread and and as fundamental as possible.

Further arguing or quarreling or debating over the comparative merits of various "cures," "specifics," panaceas and routine treatments is abortive of useful results and wasteful of valuable time. It has diverted in the past from advance in real knowledge and appreciation of fundamental facts, and has obstructed real progress towards ultimate ability in rational, scientific clinical handling of disease.

What is needed now is the stopping of quarreling and the securing of all possible coöperation among workers in addiction, taking from each whatever is useful, and making it available to all, encouraging every available interest and worker, and disseminating authoritative information as to all determinable facts of addiction-disease.

The bureaus and departments of public health are the best equipped for immediate and competent work of this sort. It is the most useful health education movement and activity today, and as organized effort hitherto the most neglected. In it, and in it alone, lies the foundation for control and remedy of the narcotic drug problem.

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NARCOTIC DRUG ADDICTION (DISCUSSION).

C. E. Terry, M. D.
New York City.

A discussion of the paper by Dr. Ernest S. Bishop (just preceding) presented before the Public Health Administration Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

TO attempt to even touch upon the story of narcotic drug addiction in the brief space permitted to the discussion of a paper, would be to attempt, within such space, a recital of one of the most vast, complex and depressing chapters of national and international life, and one which has no parallel in all the stories of human misery and misunderstanding.

Much of this is ancient history and has no place in this meeting, except that, in view of the well-known disastrous effects of prolonged administration of opiates and all that has been said about them, one is forced to marvel all the more that the subject has remained almost untouched by investigators in the fields of pathology, practice and therapeutics, who have devoted such painstaking efforts to the relief of almost every other human ailment.

It is a safe statement that during the past 50 years, more time and research and more space in medical literature have been devoted to the consideration of any rare pathologic condition that one might name at random, and which may be met with once or twice in a long professional career, than has been devoted to the consideration of narcotic addiction-disease which numbers its victims by thousands every year.

The essayist has dwelt on some at least of the reasons for this neglect, so I will not say more about them in this discussion. As bearing directly upon and in support of his observations is the work of some others, clinical workers, whose conclusions are similar but whose writings are apparently little read.

Of equal importance, and of especial interest, because they approached the subject from a different angle altogether, is the work of Valenti and Hirschlaff.

Very briefly, Valenti in 1914, developed narcotic addiction-disease in dogs, after a period of gradually increased morphine administration. He then ceased the administration of the drug to them completely, throwing the animals into the severe physical manifestations characteristic of drug withdrawal.

Blood serum taken from these animals, in the withdrawal state, produced, when injected into normal dogs, the same symptoms shown by the addicted dogs upon withdrawal of their opiate. Furthermore, the violence of these symptoms in the normal dogs, was directly proportionate to the dosage of morphine to which the addicted dogs had been accustomed.

He concludes that the signs and symptoms of withdrawal, or morphine need, are not due to the absence of the drug,—but are due to a new substance, originating within the body and circulating in the blood which substance is toxic to the animals, when not offset by the accustomed dose of morphine.

The details of this work are available in the Archives for Experimental Parthology and Pharmacology of 1914.

Hirschlaff secured from morphine addicted rabbits during the withdrawal period, a serum which, when injected into normal rabbits, enabled them to withstand fatal doses of morphine. He repeated these experiments with mice, which animals are very susceptible to morphine. The results seemed to show

unmistakably a protective influence to be at work in the body of these addicted animals.

This work is completely corroborative of the disease entity described by Bishop in 1913.

Other convincing work has been done, both clinical and experimental, within the past twelve or fifteen years,—yet today the average physician refers these cases to the psychiatrist as mental defectives, degenerates and results of vicious indulgence, and our jails and insane asylums are considered adequate institutions for their treatment.

Is it any wonder that the charlatan has profited and that society has passed a verdict of social outlawry upon them; that police officials have persecuted them, and legislators enacted rabid laws when the medical profession which created many of them, as it is still doing, fails to study or teach in its schools the known facts of this disease?

Why, only this morning, the health executive of one of our largest cities, is quoted by a local newspaper as expressing himself in favor of a system of enforced central registration with photographic and finger-print record of all narcotic addiction-disease victims.

It might be pertinent to ask how shall we catalog these of the returning troops from over-seas who have had added, to their other sufferings and sacrifices, that of addiction-disease, yet this is an inevitable result of prolonged narcotic administration necessitated by the medical exigencies of warfare?

The need for better public understanding of this disease, for such it is, is very great, as is that for scientific research, and I feel strongly that the American Public Health Association should not overlook the importance of this,—one of the greatest health, not police, problems—of today.

The Oklahoma Pow-Wow.—The Okhaloma Tuberculosis Association issued in April 1, 1919, the first number of a monthly bulletin called the *Oklahoma Pow-Wow.* The purpose of the bulletin is to discuss things of general interest to public health workers; to afford a medium of exchange of ideas among health workers; to stimulate interest and activity in the prevention of disease, particularly in Oklahoma; to serve as a connecting link between the local tuberculosis and health organizations and the national associations; and to present the news of the activities of the Oklahoma Tuberculosis Association to all who are interested. It is planned to reach health workers, farmers, school teachers, business organizations, municipal and state officials, physicians, social workers and all others interested in promoting good health. The bulletin may be received regularly without charge by applying to the Oklahoma Tuberculosis Association, 315 Oklahoman Building, Oklahoma City, Okla. The editor is Jules Schentz, the secretary of the association. The assistant editor is H. W. Smith.

(*M. P. H.*)

The Control of Tuberculosis.—According to *Outdoor Life* for February, 1919, the principal factors in the control of tuberculosis as summed up by Dr. David R. Lyman, Dr. John B. Howes, 2nd, Dr. H. W. Hill and Dr. Allen K. Krause are as follows:

1. The discovering of the cases of tuberculosis and the reporting of these cases to the health authorities.

2. Adequate facilities for the care and instruction of curable cases. These facilities must be properly equipped and maintained.

3. The segregation of the infectious and communicable case.

4. The education and treatment of the non-infectious case by dispensaries, nurses and other public health agencies.

5. Education of the general public in the nature and prevention of tuberculosis and in the manner by which a strong resistance against disease may be built up and maintained. This point includes the problem of raising the standard of living for millions of people.

(*M. P. H.*)

SOME MEDICAL ASPECTS OF THE HIGH COST OF LIVING.

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Director, Bureau of Preventable Diseases, Department of Health, City of New York.

Read before Sociological Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

What do the working people omit from the table when food is dear? How much does old "H. C. L." reduce their nutrition? How many women are forced into shops; how many children obliged to labor? These are the health problems that Dr. Harris has been investigating in New York City among large groups of the population.

SCOPE AND PURPOSES OF THE STUDY.

EVERY thoughtful physician has no doubt been frequently impressed with the fundamental importance of economic conditions in relation to disease. The economic status of families may in variable measure be responsible for the development of certain diseases among their members; or it may determine the nature of medical treatment, and the general or special care which it is possible to give the patient, and thus influence the ultimate outcome of a case with respect to recovery.

Physicians may record or make mental note of individual cases in which the financial status of a family has exercised a powerful influence with relation to disease, but, unless such data are compiled in a scientific manner and on a sufficiently large scale, the knowledge acquired by the medical profession in piecemeal fashion cannot be utilized as it should be, to influence and inform public opinion, and to stimulate the development of social, economic and legislative remedies.

Apparently, the members of the medical profession are not generally aware that their testimony in matters affecting the health of communities has begun to carry great weight, and has had a determining influence not only in securing much needed remedial legislation to improve public welfare, but that such testimony has in certain signal instances been decisive in appeals brought before the courts. For example, the constitutionality of the Oregon Minimum Wage Law was maintained by the United States Supreme Court on the basis of testimony justifying it as a necessary health measure. Physicians who realize the growing importance of medical testimony in matters concerning community welfare, cannot remain passive, timid, or excessively conservative witnesses. If they are alert, and desire opportunities for service, they can no longer be content to merely treat disease, and to withdraw from active participation in efforts aimed to improve living conditions and to prevent disease. It is the purpose of this paper to present in a rough and broad outline a study of living conditions, with especial reference to the effects of the high cost of living, which was made by the nurses of the Bureau of Preventable Diseases of the Department of Health of the City of New York under the direction of the writer, during the period extending from the middle of December, 1917, to February 10, 1918.

Those who accept the thesis stated in the beginning, namely, that physicians should guide and shape public opinion and thus assist in improving living conditions which relate to health, will be able to read between the lines. They will dis-

cern in the observations which are summarized as a result of this study, many factors which are usually not recognized as conducive to disease but which interfere with the restoration of patients to a useful and contented life, and may initiate a long train of unfortunate circumstances and events which have a blighting effect upon family or community life. The thesis may also bring into prominence the scarcely recognized fact that the public health nurse is tending more and more to qualify as an aid and ally of the physician practising both among the poor and the so-called middle class. The public health nurse has in the past been largely relegated to the exercise of police powers in enforcing the isolation of persons affected with communicable disease, and to routine work largely of a clerical character. It is hoped that this communication will succeed in indicating that, in exact ratio as the public health nurse has been able through tact, sympathy and unobtrusive friendship to secure intimate details of the family life, as shown in this study, so, by the same qualifications, she may become the emissary and aid of the private physician in rendering assistance and in giving instruction to the families in which they have a joint interest. Heretofore, the family physician has been resentful of the intimate contact of the public health nurse with his patients, and often with good reason, and has kept her at arm's length. If it is made apparent that the modern public health nurse has been trained to show sympathy, to be helpful, and to make accurate observations, thus serving both as heart and eyes of the health department, it may become easier in the near future to persuade the private physician to make her his intermediary and assistant in the care of the sick so as to benefit the patient, and better protect the family and the community.

The study here reported may have value also, because it tends to show the necessity for a careful investigation of general and individual conditions, in order that medical advice and treatment shall be given which reflect a knowledge of those conditions in the family, and in order to enable the physician to avoid giving counsel of an impractical character. For example, the doctor or the nurse, who does not ascertain by frequent, honest and painstaking study, the nature of economic, social and domestic difficulties which may surround the patient, is bound to advise a dietary or treatment which it may be absolutely impossible for the patient to secure under existing conditions. The public health nurse is frequently able through the coöperation of affiliated social groups to lighten the financial burdens of the patient and of the family. Also, of the many services which the public health nurse is prepared to render the private physician, the collection of timely and essential data with reference to the home life of the sick is not the least important.

Although the facts recorded in this study have varied implications, for purposes of illustration merely and not by way of special pleading, the writer desires to indicate the range of usefulness of such an investigation, when viewed as a basis for the justification of health insurance. It may also possibly serve as an answer to those who have contended that the high cost of foods and other necessities of life was more than offset by a prevailing high wage.

It is the aim of the writer to bring into focus by means of this study those facts relating to the social and economic conditions of the family, which the public health official ought to know in order that he may understand the needs of the community, the limitations under which he labors, and the problems which he must help solve. Moreover, it also tends

to make the work of public health nurses who collate such data as presented in this study, more sympathetic, and it contains a challenge to their kindness and humanity, and tends to make them individualize in the care and instruction given to each family. It also indicates what particular type of service the nurse should be equipped to offer and how to correlate her work with that of other educational and relief agencies.

Type of Families Studied.

We have striven to make this study in a dispassionate spirit and without the preconceived purpose of pleading any special case. Although a larger number of families was studied, the writer feels warranted in reporting the results of visits to only 2,084 of these families; the data obtained in the other families not being adequate in important essentials. Nearly 60 per cent of these families were visited for the primary purpose of supervising cases of tuberculosis; the remaining number were visited in the course of the supervision of diphtheria and scarlet fever. They were not specially selected but were visited by the nurses of the bureau in the order in which they were reported. The nurses were first brought together several times and carefully instructed to record only such facts as were pertinent in connection with the effects of the high cost of living. This is pioneer work so far as our municipal public health investigations are concerned, and the writer realizes that many essential points which were omitted or slurred might well deserve more extended and precise study. Some of the deficiencies became apparent after the work was under way, but it was too late to attempt to correct these defects. Of the conscientiousness and care of the nurses who made this study, there have been many evidences.

In the beginning of September, just before the epidemic of influenza and pneumonia had gained entrance into the City of New York, the nurses had begun a second study of the same character, but this was of course promptly abandoned when it became necessary to press the one hundred and seventy-five field nurses of the Bureau of Preventable Diseases into emergency bedside service and to assign them to other work immediately connected with the epidemic.

Size of the Families.

Of the 2,084 families which were the subjects of this study, 772 were Hebrew, 478 Italian, 465 American, 210 Irish, 108 Austro-Hungarian and German, and 51 were colored. The families consisted of 4,991 adults and 5,612 children, a total of 10,603 persons in all, an average of 5.08 persons and 2.69 children per family.

The average number of children per family shows an interesting variation as follows: Austro-Hungarian and German 2.46; Italian 3.43; Hebrew 2.90; Irish 2.26; American 1.98; and the smallest number of children (as one would expect who

TABLE 1—SHOWING CLASSIFICATION OF RACIAL GROUPS, NUMBER OF ADULTS, CHILDREN, AND THE NUMBER OF WAGE EARNERS AMONG THE LATTER.

	American	Hebrew (Native and Foreign born)	Italian	Irish	Austro-German Etc.	Colored	Total
No. of families	465	772	478	210	108	51	2,084
Total No. of persons	2,065	4,027	2,813	1,004	517	177	10,603
No. of adults	1,143	1,788	1,173	529	244	114	4,991
No. of children	922	2,239	1,640	475	273	63	5,612
Average No. of persons per family	4.4	5.21	5.88	4.78	4.78	3.47	5.08
Average No. of children per family	1.98	2.90	3.43	2.26	2.46	1.42	2.69
No. of adult wage earners	678	885	629	283	128	73	2,676
No. of children wage earners	51	245	121	47	25	4	493

knows the high infant mortality rate of the race) among the colored, namely, 1.42 children per family. (See Table 1, p. 493.)

Size of Family Income.

The size of the family income may fairly be regarded as the crucial point upon which hinges its economic independence and its ability to live on a plane necessary to the maintenance of good health. The physician has a particular interest in the groups whose incomes fall greatly below what is commonly regarded as a minimum living standard. The physical derelicts whom the physicians are called upon to treat in the dispensaries, hospitals, and other institutions, are recruited very largely from the ranks of those whose incomes are inadequate to secure the necessities of life. The physician and the public health officer have a special interest in the size of the family income because it influences not only the prevention of disease, but it determines to what degree the patient can secure the type of special treatment, the nursing care, and the freedom from work and worry essential for the recovery of the patient and the welfare of his or her dependents. If, as we know, tuberculosis is most prevalent among the poor, it is out of the question to counsel the tuberculous patient to secure rest at a country resort, to obtain an abundance of fresh eggs and milk and other nourishing food, etc., unless these are provided in adequate measure through the generosity of private or of governmental agencies to all who are in need of such care. As similar studies made by Julia Lathrop of the Children's Bureau and other Federal investigations have shown, an adequate income plays a greater rôle in the maintenance of public health than any other single factor.

Moreover, there are many types of disease which are discovered in the course of such a study as this, in which an adequate income plays an equally important rôle in so far as concerns the proper treatment and care of the patient and the influence upon the other members of the family. The following statement as to the total incomes of the 2,084 families which we studied gives much fruit for thought. (See Table 2.)

TABLE 2—SHOWING RANGE OF TOTAL ANNUAL INCOMES PER FAMILY

	American	Hebrew	Italian	Irish	Austro-German Etc.	Colored	Total	
$ 300 to $ 600	56	178	136	42	8	14	434	20.89%
600 to 900	121	238	166	49	50	12	636	30.5 %
900 to 1,200	109	174	81	49	20	12	445	21.3 %
1,200 to 1,500	44	83	47	31	14	7	226	10.8 %
1,500 to 1,800	23	24	6	6	6	..	65	3.1 %
1,800 to 2,100	25	14	4	2	2	..	47	2.2 %
2,100 to 2,400	1	2	2	1	..	..	6	..
2,400 to 2,700	..	3	..	2	..	..	5	..
2,700 to 3,000	3	1	2	..	..	1	7	..
3,000 to 4,000	2	2	..	1	..	..	5	..
4,000 to 5,000 and over	1	1	..	1	..	..	3	..
Not ascertainable	65	43	23	20	8	5	164	..
Supported by relatives	1	1	..	..	..	..	2	..
Supported by charity	10	8	11	6	..	..	35	..
Supported by pension	4	..	..	..	..	..	4	..

It may be amazing to many that of these families, which represent a fairly typical cross-section of conditions in New York City, 21 per cent should have had a total income of $600 per annum or less for the support of an average number of about five persons per family, during the beginning of 1918. An additional 30.5 per cent had a total income of from $600 to $900 per annum, and about 21 per cent, an income of from $900 to $1,200 per an-

num. In other words, 51 per cent of all of these families had a total income not exceeding $900 per annum, during a period when the prices of essential foodstuffs and other necessities went soaring to an unusual altitude, and a total of about 72 per cent had an income not exceeding $1,200. To those who have read the statements of Royal Meeker, United States Commission of Labor Statistics, that in 1916 the average white family consisting of father, mother and three children under 15, could not make both ends meet in Washington, D. C., on less than $1,200 per annum, and that in 1918 it required $1,800 per annum, the facts here presented will come with special force.

Wage Earners.

Among these 10,603 persons there were 3,169 wage earners, of whom 493, or 15.5 per cent were 16 years or under; among Italians 16 per cent; Americans 7 per cent; Irish 13 per cent; the Central Empire Group 16.2 per cent; and the colored only 4.3 per cent. It is a significant fact that 26.5 per cent of the children who were 16 years and under had their academic or vocational training interrupted and were forced into industry in positions requiring unskilled labor in order to supplement the family earnings to counterbalance the effects of the high cost of living. (See Table 1, p. 493.)

Families Dependent Upon Charity.

What is still more interesting as an index of economic conditions during the beginning of this year, when prices of various commodities had not yet soared to the high range they attained at the end of 1918, is the fact that of these 2,084 families, 9.1 per cent had for the first time in their history been compelled to seek aid from charitable organizations. I have not the time to dwell in this particular report upon the many implications of the bare facts which I am here stating and must leave these to individual judgment and to future analysis to amplify and interpret. (See Table 3, p. 496–497.)

Women Forced into Industry.

How pressing the need for added income to meet the increased cost of living was, may be further judged by the fact that in 9.8 per cent of the homes reported in this study, the housewife had to enter industry to add to the family income. Many of these women undertook arduous work and it may be fairly conjectured that fatigue did not tend to enhance the quality of maternal or nursing care which devolved upon them upon returning home from their work, aside from the effects which such dual responsibilities may have had upon the health of the women themselves. (See Table 3, p. 496–497.)

Debts Incurred to Meet the High Cost of Living.

Especial care was taken to distinguish indebtedness due directly to the high cost of living and that due to other causes, and it was found that 374 or 17.8 per cent of these families had gotten into debt on this account. One hundred and fifty-two families were indebted for rent and had been hard put to it for months to settle this obligation; 153 owed money for groceries; 16 for meat; 12 for clothing; 11 for medical service; 8 for gas and fuel, and others for miscellaneous purposes. One may with justice assume that a certain proportion of those who had contracted a number of debts would within a short period be numbered among those obliged to accept charitable aid. (See Table 3, p. 496–497.)

Boarders Taken in to Meet the High Cost of Living.

One hundred and twenty or 5.7 per cent of these families which had hitherto taken in no boarders, were compelled on

TABLE 3—GIVING DATA AS TO BOARDERS, ACCEPTANCE OF CHARITY, ENTRANCE OF WOMEN

	American	Hebrew
Boarders accepted	21	62
Resorted to charity	34	60
Housewives forced into industry	Nature of Occupations Office cleaning .. 7 Day's work ..... 7 Janitress ..... 12 Typewriter ..... 1 Clerk ..... 2 Chambermaid .. 1 Sewing ..... 2 Matron ..... 1 Factory ..... 2 Operator ..... 1 Store ..... 1 Laundress ..... 2 Art. flowers ..... 1 Cigars ..... 1 Kind of work not specified ..... 4 Total, 45	Nature of Occupations Janitress ..... 8 Cleaner ..... 3 R'st'r'nt helper .. 2 Furs ..... 1 Day's work ..... 3 Helper in store .. 2 Embroidery .... 1 Sewing ..... 2 Operator ..... 2 Finisher ..... 1 Basket making ... 2 Peddlar ..... 1 Waitress ..... 1 Neckwear ..... 1 Laundress ..... 1 Kind of work not specified ..... 19 Total, 50
Children forced into industry	Nature of Occupations Operator ..... 1 National Biscuit Company ..... 1 Millinery ..... 3 Errands ..... 2 Piano factory ..... 1 Typist ..... 1 Electrician ..... 1 Printing ..... 1 Candy factory ..... 1 Total, 12	Nature of Occupations Bookkeeper ..... 2 Errands ..... 4 Printer ..... 1 Store helper .... 1 Sewing ..... 2 Electrician ..... 1 Clerks and office work ..... 11 Pencil factory .. 1 Basket making .. 1 Peddlar ..... 1 Hat factory ..... 1 Silk factory ..... 1 Operator ..... 2 Paper box factory 1 Shipping clerk ... 1 Kind of work not specified ..... 27 Total, 58
Put into debt	Nature of Debt Rent ..... 26 Groceries ..... 49 Butcher ..... 2 Gas ..... 2 Insurance ..... 2 Undertaker ..... 1 Clothing ..... 2 Doctor ..... 3 Total, 87	Nature of Debt Rent ..... 52 Groceries ..... 59 Butcher ..... 6 Gas ..... 2 Fuel ..... 3 Clothing ..... 8 Doctor ..... 4 Medicine ..... 1 Furniture ..... 1 Milk ..... 1 Borrowed from relatives ..... 2 Total, 139

account of the increased cost of living to resort to this expedient to increase their incomes. (See Table 3.) Sociologists recognize that boarders in the homes of tenement dwellers affect the health of the family through overcrowding, and also have an undesirable influence upon the family morals.

Sickness Census.

The sickness census which was obtained in the course of this investigation, and which is shown in Table 4, refers only to cases in which complete disability was present. When we first undertook this survey, we had not in mind the making of a sickness census; when we make another investigation of this character, as we hope to do in the near future, its scope will be greatly enlarged. (See Figure A.) Incomplete as this sickness census is, it indicates, however, that there were a considerable number of cases of acute and chronic illness of non-communicable character, which constituted serious drains upon the financial resources of such families. To the person who properly translates statistics such as these, and who discerns as he reads them the far-reaching influence of the conditions they reveal upon the daily lives of thousands of families of which they are typical, they constitute a powerful argument for the necessity of social, economic and legislative remedies. If economic conditions are such that the housewife must enter industry in order to make the family income adequate, it is inevitably bound to follow in greater or less degree that the sick members of the family, as well as those who are well, will be neglected. The seemingly trifling details upon which this study aims to focus attention, may count more in determining good citizenship, as well as the conservation of health and life of the growing child, than vol-

AND CHILDREN INTO INDUSTRY AND INDEBTEDNESS DUE TO HIGH COST OF LIVING.

Italian	Irish	Austro-German, Etc.	Colored	Total
12	12	9	4	120
60	32	2	3	191
Nature of Occupations Office clg. 1 Laundress 1 Janitress 6 Day's work 4 Finisher 6 Box factory 2 Candy factory 1 Garter factory 1 Glove factory 1 Artificial flowers 3 Factory 10 Stenog. 1 Embroid. 3 Sewing 11 Waitress 1 Kind of work not specified 18 Total, 70	Nature of Occupations Embroidery 1 Sewing 2 Office cleaning 3 Janitress 8 House work 1 Stenographer 1 Box factory 1 Bottling 1 Factory laundress 1 Kind of work not specified 11 Total, 30	Nature of Occupations Janitress 1 Laundress 1 Office cleaning 1 Window cleaning 1 Total, 4	Nature of Occupations Sewing 1 Kind of work not specified 6 Total, 7	Total 206
Nature of Occupations Operator 4 Florist 1 Helper on wagon 1 Factory 5 Paper box factory 1 Shield factory 1 Newspapers 1 Clerk 1 Paper factory 1 Nation. Bis. Co. 1 Buttericks 2 Errands 3 Sewing 2 Kind of work not specified 21 Total, 45	Nature of Occupations Telephone 1 Door boy 1 Elevator boy 1 Pushcart 1 Papers 1 Office work 3 Lab. assist. 1 Kind of work not specified 4 Total, 13	Nature of Occupations Operator 1 Kind of work not specified 4 Total, 5	Nature of Occupations Rug factory 1 Errand boy 2 Day's work 1 Maid 1 Total, 5	Total 138
Nature of Debt Rent 51 Groceries 28 Butcher 5 Baker 1 Insurance 2 Furniture 1 Doctor 2 Gas 1 Clothing 2 Miscellaneous 3 Borrowed from relatives 1 Total, 97	Nature of Debt Rent 18 Groceries 15 Butcher 3 Doctor 1 Mortgage 1 Sundry 5 Total, 43	Nature of Debt Rent 3 Groceries 1 Total, 4	Nature of Debt Rent 2 Groceries 1 Doctor 1 Total, 4	Total 374

TABLE 4—SICKNESS CENSUS OF COMMUNICABLE DISEASE CASES AND OTHER ILLNESSES.

	Americans		Hebrew		Italian		Irish		Austro-German, Etc.		Colored		Total	
	Adults	Children	Adults	Children	Adults	Children	Adults	Children	Adults	Children	Adults	Children	Adults	Children
Tbc. Total of Tbc. Cases	290	25	407	58	242	127	112	25	65	6	32	22	1148	263
Tbc. Ill less than one year	49	11	47	7	43	7	18	6	6	..	12	4	175	35
Tbc. Ill one to two years	107	12	160	25	83	34	50	1	35	3	14	6	449	81
Tbc. Ill two to three years	77	2	107	1	36	7	27	3	12	..	1	6	260	19
Tbc. Ill over three years	52	..	93	*25	56	†42	15	†5	11	†3	5	6	232	81
Suspected Tbc. under observation	5	..	..	..	24	37	2	10	1	..	..	..	32	47
Diphtheria and Scarlet Fever	5	133	1	262	2	122	1	33	..	52	1	2	10	604
Typhoid Fever	2	1	4	..	3	..	1	..	..	..	..	..	10	1
Whooping Cough	..	23	..	9	..	6	..	3	..	..	..	..	..	41
Influenza	1	..	1	..	..	..	..	..	..	..	..	..	2	..
Pneumonia	2	3	..	3	1	1	1	1	..	..	1	..	5	8
Acute and Chronic Bronchitis	..	1	..	4	8	3	..	3	..	..	..	..	8	11
"Rheumatism"	1	..	2	..	1	..	2	1	..	..	..	..	6	1
Cardiac Disease	1	4	2	2	..	..	1	..	..	..	..	..	4	6
Asthma	..	..	3	..	..	..	..	..	..	..	..	..	3	..
Carcinoma	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Gastro-Intestinal Disease	1	1	2	..	3	..	1	..	..	..	..	..	7	1
Nephritis	..	..	1	..	2	..	1	..	..	..	1	..	5	..
Acute and Chronic Anter. Poliomyelitis	..	1	..	..	2	1	..	..	..	..	..	..	2	2
Insanity	..	..	2	..	1	..	..	..	..	..	..	..	3	..
Miscellaneous Surgical Conditions (Tumors, Etc.)	1	..	..	..	6	..	4	..	..	..	2	..	13	..
Chorea	..	1	..	..	..	..	..	..	..	..	..	..	..	1
Miscellaneous Illnesses	..	9	..	2	..	1	..	..	..	..	..	..	..	12
Total of all cases of illness	304	202	426	340	271	261	124	66	65	58	37	24	1227	951

* Time not stated. † Not specified.

umes of arguments and lectures and high sounding oratorical effort.

Recovery Retarded.

One of the most difficult decisions which devolved upon the nurses who were engaged in this inquiry, was with reference to the influence of the high cost of living upon the length of the period of convalescence and upon recovery of per-

TABLE 5—SHOWING EFFECT OF H. C. L. IN RETARDING RECOVERY, IN

	American	Hebrew	Italian
Recovery Retarded	Total No., 48 Due to Tbc. 37 " " Cardiac 2 " " Ear trouble 1 " " Maternity 1 " " Rheumat. 1 " " Chorea 1 " " Diseases not specified 5	Total, 109 Due to Tbc. 20 " " Wh.C. 2 " " Disease not specified 87	Total, 82 Due to Tbc. 20 Others not specified 62
Working Time Lost	Total No., 63 Less than 1 Mo. 8 1 to 3 Mo. 29 3 to 6 Mo. 13 6 to 9 Mo. 3 9 to 12 Mo. 10	Total, 95 Less than 1 Mo. 40 1 to 3 Mo. 31 3 to 6 Mo. 18 6 to 9 Mo. 3 9 to 12 Mo. 3	Total, 68 Less than 1 Mo. 26 1 to 3 Mo. 22 3 to 6 Mo. 12 6 to 9 Mo. 2 9 to 12 Mo. 4 Irregular Working 2
Wages Lost	$12,486.00	$9,307.50	$9,802.00

TABLE 6—SHOWING ARTICLES OF FOOD DISPENSED WITH OR

American				Hebrew				Italian			
Dispensed with		Substitutes		Dispensed with		Substitutes		Dispensed with		Substitutes	
Meat	190	Fish	22	Meat	264	Cheap cuts	112	Meat	223	Fish	62
*Reduced meat	84	Cheap cuts	25	*Reduced meat	106	Fish	135	*Reduced meat	118	Cheap cuts	137
*Reduced eggs	180	Soups	26	*Reduced fish	4	Chicken	11	Eggs	161	Soup	61
*Reduced eggs	37	Vegetable soup	4	*Reduced eggs	306	Soup	67	*Reduced eggs	53	Cereal	84
Chicken	2	Cereal	164	*Reduced eggs	37	Cereal	166	Chicken	5	Macaroni	199
Fish	1	Macaroni	28	Chicken	44	Rice	51	Fish	1	Rice	18
Bread	2	Rice	13	Beans	11	Cheese	11	Cereal	6	Cheese	6
Potatoes	4	Cheese	1	Fresh vegetables	28	Noodles	24	Potatoes	4	Noodles	6
Vegetables	9	Vegetables	83	Flour	4	Dried vegetables	20	Green vegetables	40	Dried vegetables	84
Beans	1	Bread	22			Bread	21	Bread	1	Bread	37
		Potatoes	15			Potatoes	16	Cheese	12	Potatoes	12
		Fruit	1			Fruits	34			Fruits	7
		Beans	39			Macaroni	12			Beans	39
		Nuts	1			Beans	24			Vegetable stews	31
						Vegetables	88			Peas	5
										Vegetables	48
Butter	152	Fats	16	Butter	188	Fats	1	Butter	127	Fats	57
*Reduced butter	28	Nut Butter	16	*Reduced butter	33	Oleo	5	*Reduced butter	44	Nut butter	1
Olive oil	5	Butterine	28			Chicken fat	2	Olive oil	62	Butterine	2
Lard	3	Lard	3			Nut butter	1	*Reduced O. O.	10	Olive oil	6
		Cottonseed	4			Butterine	11			Lard	1
		Oleo	22			Jelly	20			Cottonseed oil	23
		Apple butter	3								
		Jelly	15								
Bottled milk	70	Loose milk	59	Bottled milk	134	Loose milk	134	Bottled milk	66	Loose milk	66
Milk	112	Coffee and tea	32	Milk	14	Tea and Coffee	102	Milk	117	Coffee and tea	71
*Reduced milk	34	Condensed milk	56	*Reduced milk	15	Condensed milk	18	*Reduced milk	70	Condensed milk	59
Cream	4	Cocoa	6	Cream	3	Cocoa	10			Cocoa	16
Sugar	12	Syrup	9	Sugar	49	Syrup	15	Sugar	24	Brown sugar	20
*Reduced sugar	16	Brown sugar	1	*Reduced sugar	98			*Reduced sugar	107	Molasses	10
Fresh bread	2	Stale bread	2	Fruits	46			Fruits	30		
Fruits	10			Desserts	2			*Reduced fruits	6		
Desserts	31			Salads	2						
Salads	4										
Cake	2										
All food reduced in quantity	22			All food reduced in quantity	83			All food reduced in quantity	45		
No food dispensed with	112			No food dispensed with	177			No food dipensed with	71		

* Indicates reduced amounts.

sons ill from various diseases. Extreme care was exercised to ascertain so far as possible whether recovery was actually retarded or otherwise affected in any given case as a result of inability to purchase foodstuffs or to obtain other care essential for the restoration of the patient to health. As will be seen from Table 5, in 287 cases out of a total of 2,183 cases of illness, or in a little over 13 per cent of the cases re-

CREATING OCCUPATIONAL DISABILITY, AND UPON LOSS OF EARNINGS.

Irish	Austro-German, Etc.	Colored	Total—All Retarded
Total, 39	Total, 5	Total, 4	
Due to Tbc. 13	Due to Tbc. 2	Due to Pleurisy 1	287
Disease not specified 26	Not specified 3	" " Kidney trouble 1	
		" " Disease not specified 2	
Total, 33	Total, 9	Total, 17	Total, 285
Less than 1 Mo. 9	Less than 1 Mo. 2	Less than 1 Mo. 0	
1 to 3 Mo. 17	1 to 3 Mo. 3	1 to 3 Mo. 10	
3 to 6 Mo. 1	6 to 9 Mo. 1	3 to 6 Mo. 2	
6 to 9 Mo. 3	9 to 12 Mo. 3	6 to 9 Mo. 3	
9 to 12 Mo. 2		9 to 12 Mo. 2	
Irreg. Work 1			
$6,176.50	$1,598.00	$2,025.00	$41,395.00

REDUCED AND FOOD SUBSTITUTES FOR ENTIRE FAMILY.

Irish		Austro-German, Etc.		Colored	
Dispensed with	Substitutes	Dispensed with	Substitutes	Dispensed with	Substitutes
Meat 90	Fish 35	Meat 28	Fish 6	Meat 12	Fish 6
*Reduced Meat 63	Cheap Cuts 26	*Reduced meat 1	Cheap cuts 12	*Reduced meat 16	Soup 3
Eggs 116	Soups 26	Eggs 41	Soups 2	Eggs 24	Cereal 9
*Reduced Eggs 28	Cereal 94	Chicken 14	Cereal 53		Vegetables 11
Potatoes 1	Rice 1	Flour 1	Rice 6		Macaroni 1
Gr. Vegetables 3	Vegetables 30	Gr. vegetables 3	Vegetables 33		Beans 2
	Bread 17		Bread 1		
	Potatoes 11		Potatoes 3		
	Macaroni 11		Macaroni 4		
	Beans 41		Beans 12		
	Vegetable stews 26		Milk 2		
	Peas 5				
Butter 91	Fats 33	Butter 42	Fats 8	Butter 15	Fats 1
*Reduced butter 25	Oleo 8		Nut butter 2	*Reduced butter 8	Nut butter 3
Lard 2	Nut butter 8		Oleo 2	Lard 2	Jelly 1
Olive oil 5	Butterine 9		Chicken fat 1		
	Jelly 10		Jelly 2		
	Apple butter 2				
Bottled milk 66	Loose milk 66	Bottled milk 8	Loose milk 8	Bottled milk 9	Loose milk 9
Milk 45	Coffee and tea 44	Milk 16	Tea and Coffee 10	Milk 7	Tea and coffee 19
Reduced milk 33	Condensed milk 30		Condensed milk 2	*Reduced milk 5	Condensed milk 3
Cream 2			Cocoa 2		Cocoa 2
Sugar 37	Syrup 6	Sugar 15	Syrup 9	Sugar 6	
*Reduced sugar 14	Molasses 1	Fruit 4		*Reduced sugar 5	
Fruit 5	Brown sugar 3			Fruits 2	
Desserts 2					
*Reduced bread 2					
All food reduced in quantities 25		All foods reduced in quantity 9			
No food dispensed with 41		No foods dispensed with 25			

corded in this census, recovery was very definitely retarded because of the increased cost of the essentials of life.

Table 5 gives in detail, so far as it was possible to ascertain these, the specific diseases in which recovery was delayed. Unfortunately, the nurses failed in certain instances to specify the particular disease in which recovery had been retarded; without exception practically, they were the cases of acute infectious disease among children, which the nurses failed to differentiate.

Working Time and Wages Lost.

In 285 out of a total of 1,228 adults, the nurses were able to obtain information as to the period of disability and the rate of pay which these patients had received just before they had become ill. For this particular group the total amount of wages lost was estimated to be $41,395. The information obtained in connection with other cases was not sufficiently complete, or for various reasons could not be obtained. (See Table 5, p. 498–499.)

The amount of time lost from gainful work has its particular significance, but like other statistical data included in this report, its interpretation must be left to the individual reader.

Influence of the High Cost of Living upon Family Dietary.

Table 6 is a careful summary of the immediate influence of the increased cost of living upon the normal dietary of the families which were the subjects of this study. It will be seen that in 807 families out of a total of 2,084 studied, or in a little over 37 per cent, meat was entirely eliminated from the dietary. In 388 families or in about 17 per cent, the amount of meat purchased was appreciably reduced.

In 828 families, eggs were eliminated from the dietary. This is of considerable significance in view of the fact that this

TABLE 7—SHOWING THE NUMBER OF FAMILIES IN WHICH

American				Hebrew				Italian			
Dispensed with		Substitutes		Dispensed with		Substitutes		Dispensed with		Substitutes	
Meat	121	Fish	10	Meat	200	Cheap cuts	73	Meat	131	Fish	10
*Reduced meat	45	Cheap cuts	16	*Reduced meat	65	Fish	71	*Reduced meat	106	Cheap cuts	31
Eggs	104	Soups	25	Eggs	253	Chicken	2	Eggs	74	Soups	41
*Reduced eggs	1	Cereal	97	*Reduced eggs	40	Soups	59	*Reduced eggs	58	Cereal	50
		Rice	10	Chicken	32	Cereal	110	Chicken	5	Rice	6
		Vegetables	36	Fish	3	Rice	49	Gr. Vegetables	20	Vegetables	36
		Bread	21	Gr. Vegetables	2	Noodles	18	Potatoes	1	Bread	21
		Potatoes	7			Vegetables	27	Bread	1	Potatoes	11
		Macaroni	14			Bread	17	Cheese	2	Macaroni	92
		Beans	13			Potatoes	9			Beans	23
		Pea and bean soup	5			Fruits	14			Dry vegetables	8
		Nuts	1			Macaroni	5			Bean and pea soup	5
						Cheese	3			Veg. stews	34
						Beans	5				
Butter	77	Fats	6	Butter	123	Fats	1	Butter	78	Fats	43
*Reduced butter	17	Oleo	4	*Reduced butter	125	Oleo	5	*Reduced butter	38	Butterine	2
Olive oil	3	Nut butter	11			Nut butter	1	Olive oil	40	Cotton seed	8
		Lard	1			Butterine	1				
		Cottonseed	1			Chicken fat	2				
		Apple butter	10			Jelly	17				
		Jelly	15								
Bottled milk	67	Loose milk	56	Bottled milk	128	Loose milk	128	Bottled milk	48	Loose milk	48
Milk	57	Coffee and tea	47	Milk	108	Coffee and tea	103	Milk	73	Coffee and tea	61
*Reduced milk	6	Condensed milk	47	*Reduced milk	12	Condensed milk	8	*Reduced milk	43	Condensed milk	38
				Cream	1	Cocoa	14			Cocoa	16
Sugar	7	Syrup	8	Sugar	12	Molasses	7	Sugar	10	Molasses	1
*Reduced sugar	2	Brown sugar	6	*Reduced sugar	71	Syrup	13	*Reduced sugar	62	Brown sugar	12
Desserts	19			Fruits	2			Fruits	22		

* Indicates reduced amounts.

is one of the fundamental articles of diet in the care of the tuberculous.

The same significance attaches to the elimination or reduction of butter and milk from the family dietary.

It was found that in 615 families the use of butter was entirely eliminated; in 138, the quantity consumed was considerably reduced.

The use of sugar was abandoned in 143 families, owing to the diminished purchasing power of the dollar, and the amount of sugar was considerably decreased in 240 families.

Influence of the High Cost of Living upon Children's Dietary.

Special attention was given to the influence of the high cost of living upon the dietary of children. (See Table 7.) In 293 families, the use of bottled milk was given up, all but 11 of these families substituting loose milk for bottled milk. In 296 other families, milk was entirely eliminated from the children's dietary, and in 71 families, the amount used for children was very considerably reduced.

In 370 families the use of butter was eliminated from the list of foodstuffs given to children; in 191 families the amount used was reduced.

Sugar was omitted from the children's dietary in 71 families, and reduced in 139 families.

The use of meat in the diet of children was given up in 544 families and reduced in 238.

Eggs were entirely eliminated from the diet of children in 532 families and reduced in 107.

Effects upon Amusements and Clothing.

In 507 families, the high cost of living had a marked effect upon the ability of the family to obtain those forms of amusements to which they had formerly been accustomed.

CHILDREN'S DIET WAS PARTICULARLY EFFECTED.

Irish				Austro-German, Etc.				Colored			
Dispensed with		Substitutes		Dispensed with		Substitutes		Dispensed with		Substitutes	
Meat	73	Fish	7	Meat	19	Fish	4	*Reduced meat	2	Soups	1
*Reduced meat	20	Cheap cuts	12	Eggs	33	Cheap cuts	10	*Reduced eggs	5	Cereal	5
Eggs	68	Soups	19	Chicken	7	Soups	2			Vegetables	5
*Reduced eggs	3	Cereal	44	Gr. Vegetables	3	Cereal	32				
		Rice	1			Rice	7				
		Vegetable	13			Gr. Vegetables	21				
		Bread	9			Potatoes	3				
		Potatoes	6			Macaroni	3				
		Macaroni	6			Beans	4				
		Beans	28								
		Vegetable stews	16								
Butter	62	Fats	5	Butter	30	Fats	5	*Reduced butter	2	Nut butter	1
*Reduced butter	9	Oleo	2			Nut butter	2			Jelly	1
		Nut butter	5			Chicken Fat	1				
		Butterine	2			Jelly	2				
		Jelly	8								
Bottled milk	41	Loose milk	41	Bottled milk	6	Loose milk	6	Bottled milk	3		
Milk	36	Coffee and tea	18	Milk	15	Coffee and tea	10	Milk	7		
*Reduced milk	10	Condensed milk	27			Condensed milk	5				
		Cocoa	1			Cocoa	2				
Sugar	28	Syrup	6	Sugar	14	Syrup	10				
*Reduced sugar	4	Molasses	1								
		Brown sugar	16								

TABLE 8—SHOWING EFFECT OF H. C. L. ON

	American	Hebrew	Italian
Marked Effect on Amusements	82 marked effect	185	138
Marked Effect on Clothing	118	252	169
Marked Effect on Insurance	8 lapsed	4 lapsed	9 lapsed
Marked Effect on Alcohol	8 same as before	2 same amount	5 same amount
	2 increased	1 discontinued	1 discontinued
	5 less consumed	17 less consumed	4 less consumed

In 628 families, it had a marked effect upon the amount and the quality of clothing which they were able to purchase. (See Table 8.)

General Comments.

An exhaustive analysis of the facts presented in these tables is omitted, not only because of the limitations of space and time, but also because it would seem far more important to lay emphasis at this time not so much upon the significance of particular details brought out in this study, but rather to furnish an argument in support of the general value of an inquiry of this character conducted by a dispassionate group of competent observers. The conditions which are revealed by this study apply with equal force, by and large, at the present time, and possibly, too, the effects of the high cost of living have been greatly intensified with the progress of time that has elapsed since the study was made.

It must be apparent that surveys of this character made from time to time to note the reflection of changes in economic conditions, must throw a flood of light upon the influences affecting the care of the sick, in so far as private practice, hospital care and public health supervision are concerned. The wealth of details which were accumulated by these nurses in this pioneer public health study, demonstrates the degree to which the latter can be adapted to highly important and new phases of activities.

It is hoped that private physicians will discern in this study evidences of the help they may derive from the coöperation of humane, sympathetic and intelligent nurses, and that they will welcome in increasing measure the assistance which these public health nurses are ready to give in various ways to patients among the poor and the so-called middle class. In other words, the nurses who have qualified through such investigations as have been described, as diagnosticians of the social and economic difficulties which influence community life health, are equally qualified to assist physicians in ministering to patients and ameliorating through social service work a few of these difficulties and handicaps. Moreover, the facts gleaned in this investigation cannot help but give one whose point of view is at all altruistic, a revelation of the need for health insurance, because it shows how any illness may overthrow the economic balance which has been precariously maintained by a family, and conversely, it shows how illness may be produced or aggravated, or recovery retarded by general economic changes. It thus furnishes ground for the contention that the industrial worker should receive adequate wages, lacking which, not charity but a pension from the community in whose behalf he has labored and oftentimes sacrifiecd his health.

Finally, it is not the intent of the writer to attempt to outline a constructive program for the solution of some of the problems which have been sketched in fragmentary fashion, but the facts presented would seem possibly to justify reconstruc-

AMUSEMENTS, CLOTHING, INSURANCE AND ALCOHOL.

Irish	Austro-German, Etc.	Colored	Total
77	19	6	507 marked effect
65	21	3	628 marked effect
	2 lapsed		23 lapsed
			15 same amount
			2 increased
			2 discontinued
5 less consumed	1 less consumed		32 less consumed

tive measures that would insure to the large mass of people in the community freedom from the cramping and harassing influences which affect family welfare and cause not only suffering to the individuals and to the families, but endanger the well-being of the community as a whole.

One may hint at certain remedial measures as being worthy of consideration in connection with the problems which have been broached in this paper, not perhaps as the ultimate and desirable solution, but as a step in that direction. Among such remedies, one might consider the necessity of organizing public health nursing on such a basis that especial attention to the proper methods of purchasing, selecting, preparing and serving foods might be given in demonstration kitchens in special centers throughout the city. Such instruction is now given in a

FIGURE A—MODIFIED FORM WHICH HAS BEEN PREPARED FOR USE OF NURSES IN MAKING FUTURE STUDIES.

Name..... Address..... Floor..... Disease..... Date.....

Nationality	No. of adults	No. of children	No. of boarders	Total no. rooms	No. used for sleeping	Sanitary cond. of rooms—good, fair, bad	No. adult wage earners	Wage earners children and minors, give ages	Women forced into industry to meet H.C.L.—kind of work—mothers	Children and minors forced into industry to meet H.C.L.—kind of work and ages	Articles of food dispensed with—substitutes used for following	Substitutes	Has family taken boarders to meet H.C.L.	Has family applied for charity to meet H.C.L.	Has high cost of living put family in debt? State amount for rent, groceries, etc.	Income: Adults	Income: Children	Income: Boarders	Income: Charity
											Bottled milk Milk Eggs Cereals Fruit Vegetables Chicken Meat Butter Sugar Cheese Dairy products Miscellaneous								

No. adults ill	Nature of illness and time ill	Incidental or complications	If tbc.—sputum	No. children ill	Nature of illness and time ill	Incidental or complications	If tbc.—sputum	Working time lost through illness	Effect of high cost of living on: Amusements	Clothing	Insurance	Alcoholism	Is recovery retarded, based on: Income insufficient to buy necessary food and comforts; Prolonged convalescence: (Contagious disease); Substitutes used of insufficient value

Visited by.....

measure as a part of the school curriculum, but in altogether too limited measure. The value of the community kitchen might also be considered in this connection as a means of serving proper and nutritional foods and for the purpose of economy for those of very restricted means.

The control of public markets with a view to eliminating so far as possible the many middlemen who exact tribute, in order to make desirable foodstuffs available at a minimum of cost, might also be considered.

In this connection, too, though less important, arises the question of providing wholesome and acceptable forms of recreation through the establishment of public theatres, concert halls, etc.

These considerations should make a most powerful appeal to the physician, not only on grounds of good citizenship and humanity, but also because every right thinking practitioner of medicine who has a broad social vision and sense of justice, is keenly interested in the relation of these conditions to the health of the community.

LIPOVACCINES, WITH SPECIAL REFERENCE TO PUBLIC HEALTH WORK.

Eugene R. Whitmore,
Colonel, Medical Corps, U. S. Army.

Read before Laboratory Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

Colonel Whitmore tells in plain language just what lipovaccines are and within what limits their usefulness lies. His paper will dispel any misunderstanding about them in the minds of those not specialists.

ONE of the large fields of preventive medicine is active immunization in the form of prophylactic inoculation against infectious diseases; and the results of the work in prevention of smallpox and typhoid fever are indicative of what can be expected along this line. There are two principal methods of prophylactic inoculation: one, as in smallpox vaccination, by the use of a modified living virus; and the other, as in typhoid vaccination, by the use of killed bacteria suspended in saline solution. Many of the diseases against which we find it advisable to vaccinate are due to bacteria, and we are compelled to use bacterial vaccines as in typhoid vaccination.

But, in these killed bacterial vaccines, it is necessary to use a large amount of bacterial material; and it is not possible to give the entire amount of bacterial material at one time, on account of the severity of the general reaction following the injection.

This repeated dosage has been one great drawback to the use of bacterial vaccines. Even in the use of one vaccine, as the typhoid vaccine, the necessity of giving more than one dose is a difficulty. In a civil community, if 500 persons take the first dose, 300 may take the second dose, and 100 may take the third dose. In the armies where typhoid vaccination is voluntary, it is not found practicable to give more than two doses. Only in armies where typhoid vaccina-

tion is compulsory is it practicable to give three or four injections.

Castellani[1] and others have shown that the body is able to elaborate antibodies against two or more forms of pathogenic bacteria at one time; and that has formed the basis for the attempt to combine in one vaccine two or more organisms. But, when we come to vaccinate against more than one disease, it is not possible to use the divided doses for each vaccine; and attempt to combine vaccination against several diseases in one vaccine has made it necessary to cut down the dosage of the various organisms, so as to avoid the constitutional symptoms.

It is possible to demonstrate antibody production in small animals by the use of small numbers of bacteria, especially when given intravenously. But in the practical vaccination of men, where immunity lasting for some time is at least as important as is the immediate production of antibodies, it seems that small doses of vaccine do not give the practical protection from infection that is given by larger doses. Thus, in the use of typhoid vaccine, it seems to be pretty well established that small doses do not give the practical protection that is given by larger doses; and Le Moignic and Sezary[2] consider that, in a triple typhoid vaccine, two billion of each organism is a necessary dose to produce immunity that will last at least a year.

Murata,[3] in cholera vaccination in Japan, reduced the incidence of the disease among vaccinated persons by using a dose of 2 mgm. moist weight, of cholera vibrios; but he had no cases among the vaccinated when he increased the dose to 4 mgm., moist weight, of cholera vibrios.

Sezary,[4] using sheep cells, showed that it was possible to get as highly hemolytic serum by injecting the red cells in a single dose as by injecting them in divided doses.*

Le Moignic and Sezary[5] showed that it was possible to obtain as highly hemolytic serum by injecting red cells suspended in oil as by injecting them suspended in saline solution. They also showed that the oil suspension gives slow absorption, and that the oil acted as a detoxifying agent: 0.35 mgm. of strychnine in aqueous solution kills a guinea-pig when injected intravenously; but a guinea-pig stands six times that amount dissolved in oil in the strength of 0.5 to 1. mgm. per cc.

On the basis of this work, Le Moignic and Pinoy,[6] Archard and Foix,[7] and Le Moignic and Sezary,[8] undertook to suspend bacteria in oil, and to give the entire amount at one time; the bacteria being in small clumps scattered through the oil, in order to have slow absorption. Their work showed that it was possible to give the entire amount of bacterial material at one dose, when suspended in oil, and that the immunity reactions were as good as when the bacterial material was suspended in saline solution and given in divided doses. The French workers gave the name of "lipovaccine" to such a vaccine suspended in oil.

Thus, it seems that in practical active immunization, it is necessary to give a fairly large dose of the organism with which it is intended to immunize; and it appears that the results are as satisfactory where the entire amount of bacterial material is suspended in oil and given at

*Vedder, working with human cells, was not able to confirm this. He does find that a single large dose, followed by several small injections after an interval of several weeks, gives a very high titer serum.

The Bombay Bacteriological Laboratory has some experimental evidence that the protection afforded by Haffkine's cholera vaccine would be higher if the vaccine could be given in two doses, with an interval of one week, the first dose being half the amount at present given. Not only is there better immunity, but there is less pain and discomfort. Trop. Dis. Bull., 1917, X, 329; extract from page 114 of the Report on Sanitary Measures in India for 1914–15.

one dose, as where it is suspended in saline solution and given in divided doses.

Another difficulty with saline suspended bacterial vaccines is that autolysis is rapid; and it is generally considered that such vaccines should not be used after they are over three or four months old. Also, as autolysis advances, absorption becomes more rapid, and the general reaction following injection of the vaccine is more severe. The French workers consider that the bacteria, mixed in the oil, are practically embalmed, and that they undergo no change for at least eight months.

In our work in the army, it was evident that we would have to extend our vaccination to other diseases than smallpox and the typhoid-paratyphoid group; and it was also evident that in order to do that, we would have to reduce the number of injections necessary in giving the different vaccines. For this reason, we took up the work of preparing various vaccines suspended in oil, adopting the French name of "lipovaccine" for them. Naturally, one of our first objects was to get the triple typhoid vaccine into a single dose vaccine; and we also undertook to develop single dose vaccines of some of the other organisms that were of great importance to us in the army. Accordingly, our first lipovaccines were those of triple typhoid, pneumococcus, meningococcus, and the dysentery group; and we reported on our experimental work on those vaccines late in 1917[9] and early in 1918.[10] The triple typhoid lipovaccine is now the official vaccine in the army; and vaccination with the pneumococcus lipovaccine is voluntary in the army. The meningococcus lipovaccine and the triple dysentery lipovaccine are being tried out on a rather large scale in the army; and we have developed a streptococcus lipovaccine, a cholera lipovaccine, and a plague lipovaccine. With all of these vaccines we can give a large amount of bacterial material at one dose without severe reaction.

We believe that the lipovaccines have accomplished certain things: the vaccine keeps for a considerable time—we have put a tentative time limit of one year on it—thus doing away with the difficulty of supplying the vaccine and using it before the time limit has been passed; we are able to give well above the number of organisms that Le Moignic and Sezary consider necessary to produce a lasting immunity, and we are able to give the entire amount at one dose. This lessens the inconvenience and delay from the vaccination, simplifies the keeping of records of vaccination, and enables us to vaccinate against other diseases without increasing the number of injections over what we formerly gave in the triple typhoid vaccination alone.

The advantage of a single dose vaccine was shown in one camp where part of the organizations were still using up their stock of triple typhoid saline vaccine, while other organizations had started using the triple typhoid lipovaccine. The pneumococcus vaccination, in a single dose lipovaccine, was voluntary. The men who had taken the single dose triple typhoid lipovaccine were anxious to take the pneumococcus vaccine; but the men who were getting the three dose triple typhoid saline vaccine were slow to take the pneumococcus vaccine.

It is believed that the lipovaccines overcome some of the difficulties in the way of active immunization in public health work. The one great advantage of the lipovaccines is that the entire amount of vaccine can be given at one dose; and, as the absorption is slow, the reaction is not marked, and the immunity response is at least as good as with a saline vaccine. As the vaccine keeps for at least a year, it can be carried

in stock for a reasonable time. Since it is possible to give a very large dose of bacteria in a lipovaccine, without severe reaction, it is possible to include two or more organisms in the single vaccine.

While the lipovaccines have great advantage for use in protective inoculation, it does not appear that they are suited for use as therapeutic vaccines. In protective vaccination it is desirable to give a large dose of bacteria, and to have them absorbed slowly. In the therapeutic use of vaccines, the desire seems to be for a small dose of vaccine rapidly absorbed; and the injection of autolysates intravenously seems to be the favorite method as far as results are concerned.

In advising the use of lipovaccines, it is necessary to guard against the danger of considering whether they allow of putting a large number of different organisms into one vaccine. One of the present dangers of bacterial vaccines is the tendency to include a large number of different organisms in one vaccine, without regard to whether there is any specific action on the part of such organisms. It is necessary to discourage the use of "shotgun" vaccines, for the use of which there is no scientific or practical basis, and for which the usual excuse is that they do no harm.

Conclusion.

Protective inoculation is one of the important methods of preventing infectious diseases. Bacterial vaccines suspended in saline solution have certain drawbacks, among which are the necessity for divided doses, and the short time limit that can be placed on such vaccines.

The lipovaccines make it possible to give the necessary amount of bacterial material at one dose; and the immunity response is at least as good as with the saline suspended vaccines. The lipovaccines also have the advantage that they keep for at least eight months.

While the lipovaccines are particularly suited for protective inoculation, they are probably not suited for therapeutic use.

Great care is necessary not to convert the advantages of the lipovaccines to the development of "shotgun" vaccines.

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OBSERVATIONS ON THE AVIAN PARATYPHOID BACILLI.

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Read before Laboratory Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

This investigator presents a detailed discussion of certain types of avian bacteria, which will be of interest to specialists. He notes some reactions not observed before and the agglutinative relations.

THE organisms here discussed are Bacillus pullorum (Rettger) considered the cause of the "Bacillary White Diarrhœa" of chicks, and Bacillus sanguinarium (Moore) considered the cause of the disease of fowls known as "Fowl Typhoid."

The results given are based on a study of twenty-four strains of B. pullorum and nineteen strains of the fowl typhoid organism. The cultures have been secured from as widely different sources as possible. The history of the cultures, the methods used, etc., must be omitted at this time but will be given in a later publication. The cultures, which I have included under the name fowl typhoid organisms, were labelled in different ways by those from whom I received them. Some were labelled B. sanguinarium, others B. gallinarum, B. avisepticus, or bacillus isolated from cholera-like epidemics. Cultures of typical strains, of members of the paratyphoid-enteritidis group, of B. typhosus and other organisms were taken from the stock cultures at the University of Chicago.

On account of the limited time the discussion will be confined to a comparison of a few characteristic cultural reactions, some new reactions which have not been previously observed, and the agglutinative relationships.

Milk.

It is generally considered that B. pullorum produces acid in milk and, that B. sanguinarium produces an initial acidity but after a few days the reaction becomes alkaline as it does with B. paratyphosus B. The observations of most investigators as recorded have extended over a period of from five to eighteen days. My observations have extended over a period of thirty days, and in some cases over a period of ninety days. The indicators used to show the changes in the reaction of the milk were litmus and Brom-cresol-purple.

It was observed that all strains of *B. pullorum* produced a slight amount of acid at first but later the reaction became alkaline. The cream ring usually became alkaline a few days before that in the bottom part of the tube. With five strains of the twenty-four studied the reaction became alkaline in four days, while with six others it did not become alkaline before forty to sixty days. The majority of the strains of B. pullorum gave an alkaline reaction in ten to fourteen days. They resemble *B. paratyphosus* A in this respect.

Concerning the fowl typhoid organism it has been observed that two strains produced an alkalinity in three days and seventeen strains of the nineteen studied formed alkali in seven days and only two strains did not produce an alkaline reaction before about sixty days. B. sanguinarium, therefore, resembles B. paratyphosus B, or B. enteritidis.

The majority of the strains digest the

casein after several days incubation. However, four strains of B. pullorum and two strains of B. sanguinarium have not digested the casein in ninety days. In general, digestion of the casein is complete and alkali is formed, in milk, in a shorter time by the fowl typhoid organism than by B. pullorum. Complete differentiation between the two organisms by their action upon milk has not been possible.

Hydrogen Sulphide.

Since other members of the paratyphoid enteritidis group differ in their ability to produce hydrogen sulphide, the avian strains were tested in this respect. The method followed in this work was that used by Jordan and Victorson. All of the strains have produced hydrogen sulphide in twenty-four hours with the exception that one strain of B. pullorum and one of the fowl typhoid organism, have consistently failed to form hydrogen sulphide in the lead acetate medium before forty-eight hours. A few other strains have varied slightly, at different times, in the length of time required to produce the hydrogen sulphide. Thus these avian strains react like B. enteritidis and B. paratyphosus B, in hydrogen sulphide production.

Fermentation of Carbohydrates.

The fermentation reactions of these organisms apparently offers the best means of differentiating between them. Rettger and Koser, and more recently Krumwiede and Kohn, have tested their fermentative properties on several of the carbohydrates. They have observed that the principal difference between B. pullorum and the fowl typhoid organism is that the former produces gas in several of the carbohydrates such as dextrose, mannite, arabinose, rhamnose, etc., and does not ferment maltose or dulcite. In general, my observations have been similar to theirs.

The gas producing power of B. pullorum is quite irregular. Rettger, Smith and Ten Broeck, and others, have observed that some strains do not form gas in any of the carbohydrates, while other strains vary in their ability to produce gas at different times, and in other carbohydrates. The ability to form acid appears to be more constant, although there are some variations in this respect which will be noted later.

Rettger and Koser consider that the ability of B. sanguinarium to ferment dulcite, with acid production, may serve to differentiate it from B. pullorum which does not attack this carbohydrate. In my work similar reactions in dulcite have been observed.

These investigators have suggested that B. sanguinarium may also be distinguished from B. pullorum by the ability of the former to produce acid in maltose. Krumwiede and Kohn, however, have observed that some strains of B. pullorum also produce a slight amount of acid in maltose after several days incubation. They consider, however, that this slight amount of acid is due to the hydrolysis of the maltose in such long incubation periods. In my own work two strains of B. pullorum and two of B. sanguinarium have reacted irregularly in maltose.

Other carbohydrates in which the fermentative reactions are quite characteristic or which may serve in differentiating between these two avian strains, are sorbite and rhamnose. Sorbite is fermented slowly by both avian strains. All the strains of B. pullorum form acid, but only a few of them produce gas. Nine of the strains of the fowl typhoid organism do not produce acid in sorbite in sixty days. Krumwiede and Kohn have observed similar results with the B. sanguinarium. Thus there appears to be considerable variation in the acid and gas

production in this carbohydrate by these avian types. Rhamnose is fermented promptly by B. pullorum with acid and generally gas production. The fowl typhoid organism, however, acts rather slowly and does not produce acid, in any case before forty-eight hours and in most cases not before five days. This suggests that the fowl typhoid organism is more closely related to B. typhosus than is B. pullorum.

From the variations in the cultural and fermentation reactions of these organisms one might be led to consider B. pullorum and B. sanguinarium variable strains of the same organism. Yet most investigators prefer to consider them as separate types. On the one hand the B. pullorum does not ferment dulcite and in general produces gas in several of the carbohydrates while on the other hand the fowl typhoid organism ferments dulcite and does not form gas in any of the carbohydrates. The fermentation reactions in maltose and rhamnose may often serve to differentiate between the two organisms. We cannot use the agglutination test to differentiate between these two organisms as is done with other members of the paratyphoid-enteritidis group, where certain strains are somewhat irregular in the fermentation reactions.

Agglutination.

The agglutinative relation between B. typhosus and these avian strains was first observed by Theobald Smith. He and Ten Broeck further observed that these organisms were not agglutinated, by sera of rabbits immune to B. cholera suis, or by sera of horses immune to different types of B. dysenteræ. In my own work similar results have been observed and in addition it has been found there is no agglutination relation between these organisms and B. coli, B. proteus, B. avisepticus, and B. paratyphosus A. The sera of rabbits immune to B. paratyphosus B, have agglutinated some of the avian strains, at times, in dilutions as high as 1:250 yet the majority of the avian strains are not agglutinated by such sera in dilutions as high as 1:100.

There is, however, a closer antigenic relation between these avian strains and B. typhosus, B. enteritidis, and B. abortus equinus. The very close antigenic relation to B. typhosus has been observed by several investigators and needs no further consideration at this time.

There is a certain agglutinative relation between these avian strains and B. enteritidis but this relation does not appear to be as close as that between them and B. typhosus. The sera of rabbits immunized to B. enteritidis, with a titer of 1:10,000, agglutinated a few of the avian strains in a dilution as high as 1:2500, and all strains in a dilution of 1:250. Certain strains of B. enteritidis were agglutinated, with sera of rabbits which were immunized toward the avian types, in as high a dilution as strains of B. pullorum or the B. sanguinarium. Eight strains of B. enteritidis have been tested in this respect and all have been agglutinated in dilutions of 1:1000 or above, when the titer of the sera was 1:10,000. Thus it was observed that sera of rabbits which were immunized to B. pullorum or the fowl typhoid organism, agglutinated B. enteritidis as well as B. typhosus, but the avian strains were not agglutinated as well, with sera of rabbits which had been immunized to B. enteritidis, as with sera of rabbits immune to B. typhosus.

The agglutination relation between these organisms and B. abortus equinus is rather peculiar. The serum of a rabbit immunized to B. abortus equinus has not agglutinated the strains of B. pullorum or B. sanguinarium in dilutions above 1:100. But the sera of rabbits which

were immunized toward the avian strains agglutinated five strains of B. abortus equinus. In some cases strains of B. abortus equinus have been agglutinated in as high a dilution as some of the avian strains. In other cases the agglutination was not so marked, although five strains of B. abortus equinus have been agglutinated in dilutions of 1:1000 or above, when the titer of the sera was 1:5000. From this it appears that B. abortus equinus is not so closely related antigenically to the avian strains as is B. typhosus or B. enteritidis. It appears that B. enteritidis occupies an intermediate position between B. typhosus and B. abortus equinus in its antigenic relation to B. pullorum or the fowl typhoid organism.

Summary and Conclusions.

The fowl typhoid bacillus and B. pullorum produce a slight acidity in milk in twenty-four hours but after three to sixty days the reaction becomes alkaline. Hydrogen sulphide is produced by most of the avian strains. Dulcite appears to be the only carbohydrate which is not fermented by any strains of B. pullorum and which is fermented by all strains of the fowl typhoid bacillus. B. pullorum varies considerably in its ability to produce gas in several of the carbohydrates and it also apparently varies in its ability to ferment maltose. The fowl typhoid bacillus does not form gas in the carbohydrates and apparently varies in its acid production in maltose and sorbite. These avian strains have certain agglutinative relations to B. typhosus, B. enteritidis, and B. abortus equinus but do not show such relationship to B. paratyphosus A and B, B. suipestifer, B. coli, B. proteus, B. dysenteriæ, and B. aviseptícus.

The fowl typhoid bacillus may be distinguished culturally from B. pullorum by its ability to produce acid in dulcite. Other reactions which may help to distinguish this organism from B. pullorum are that it generally forms acid in maltose, ferments rhamnose more slowly, does not produce gas in the carbohydrates and usually forms alkali in milk in a shorter time.

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ENDEMIC GOITER AS A PUBLIC HEALTH PROBLEM.

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Read before Public Health Administration Section, American Public Health Association, at Chicago, Ill., December 12, 1918.

Twelve thousand persons in West Virginia are afflicted with goiter, which is nevertheless a disease little considered in the United States. It is endemic in New Hampshire and other mountain regions. Mr. Tolman assembles what is known of its causes and distribution.

COMING as I did from Massachusetts where goiter is relatively rare, to the western part of Maryland and later to West Virginia where it is a common sight, this strange disease naturally occupied considerable of my attention and occasioned no small amount of reading on the subject. The more I have studied goiter the more convinced am I that it is a public health problem and it is this phase that I wish to discuss more than its prevalence in one particular community.

The word goiter is probably derived

from the Latin "Guttur" meaning throat. The disease commonly manifests itself by an enlargement of the thyroid gland. These enlargements may vary all the way from the size of a cherry to masses weighing seven or eight pounds or more. The effect on the person afflicted is in no way proportional to the size of the growth. A practically invisible goiter that grows inwardly pressing on the trachea may cause much greater inconvenience and be a source of greater danger to the patient than the most unsightly enlargement. Goiter in general is not dangerous in itself. It is not contagious or infectious nor is it probably hereditary. Its danger, if that term can be used, lies in that it must more or less sap the strength of the afflicted individual and render him more liable to become the host of some serious infection. It is this fact combined with the consideration of the enormous numbers afflicted in centers where goiter is endemic that makes the eradication of the disease a public health problem.

To show the figures that this disease may reach it has been estimated that there are over 700,000 cases in Switzerland alone, and in 1900 more than 400,000 cases in France. In one district in Styria 10 per cent of the entire population were effected, while in Derbyshire, England, goiters are so common that they have come to be known as "Derby-necks." There are endemic centers on every continent. In North America parts of New Hampshire, New York, the Blue Ridge Mountains of Virginia, practically the entire state of West Virginia, the region around the Great Lakes and Edmonton, Canada, constitute the main goiter areas. In these districts the percentage of population afflicted is high though the endemicity is nothing like as severe as in certain parts of Europe. My recent studies in West Virginia would indicate not less than 12,000 persons afflicted, while in one county, Braxton, a house to house survey revealed 1,148 cases, or one in every twenty inhabitants men, women and children. When it is considered that the growth is not normally apparent or rather does not commonly begin until about the ninth year, the percentage afflicted may be considered as higher still. Probably about 2 per cent of these West Virginia cases are toxic and directly responsible for much suffering. If the health officer, through a knowledge of the cause of the disease, can prevent much of this goiter it certainly should be well worth his time and be productive of as much lasting good as many of the public health measures to which he now devotes his energies.

What then is the cause of goiter? Saint Lager in a memorable treatise on the subject published in Paris about 1860, enumerates more than sixty different causes that have been brought forward and argued. The list includes each and every condition of the air for a cause, including hot, cold, damp, dry, changeable, stagnant, too much oxygen, too little, or containing sulphur vapors. Theories regarding palustral and special miasmas, the paucity of solar light and the want of atmospheric electricity have all had their supporters. Forty-four of the sixty causes, however, refer to some quality or constituent of water as the responsible factor. It is now generally accepted that goiter is caused by drinking water.

Many interesting observations have been made that tend to prove the responsibility of water. In various parts of Italy, France and Switzerland for example, the drinking of certain waters for the very purpose of producing goiter to escape military duty has been resorted to with success. After the conscript has been examined and rejected he either changes

his drinking water or else boils that from the goiter producing source and the enlargement soon disappears. Changes in water supplies have sometimes been responsible for outbreaks of goiter as notably in the case of Vienna. In 1877, Vienna introduced a new supply of water from the Kaizerbrunn in Styria, a well known endemic goiter center, with the result that the increase in goiter in the city was very marked. In some cases, as in Geneva, the use of water from the lower parts of the town is attended by much goiter while wells in the higher parts appear free. The most remarkable example of which I have read, however, is that of the little village of Deota at the foot of the Durge mountains in India. It is a rather long narrow village inhabited by Brahmins, Rajpoots and Domes. The first caste was entirely free from the disease, about 50 per cent of the Rajpoots had developments while nearly all the Domes were affected. The living conditions of all three castes were the same and the only factor at all different was the water supply. The Brahmins obtained their drinking supply the year round from a non-goiterous source through an old aqueduct so dilapidated that except in the rainy seasons it would supply only sufficient water to meet their needs. During the dry season the Rajpoots, who lived between the Brahmins and the Domes, were obliged to use a goiterous spring at the foot of the hill below the Domes' village. The Domes used this spring throughout the year. Thus the gradual increase of goiter from one end of the village to the other.

Despite the reasonable certainty with which we know water to be the cause of thyroid enlargement, we are very little nearer to a true knowledge of what it is about water that accounts for goiter than we were more than four hundred years before Christ, when Hippocrates attributed the disease to the drinking of snow water from the Alps. Efforts have been made to correlate the presence of various inorganic impurities in water with the occurence of goiter but without success. In one region, a hard water may appear to be responsible, in another a high manganese content, while in still a third the ferruginous content may come under suspicion. It will be found, however, in every case that in some other district where goiter is equally endemic one or even all three of these inorganic impurities is absent. We have, however, come to a realization that goiter is more or less definitely associated with the geologic formations from which the drinking water is derived, the upper Palæozoic and lower Mesozic eras being those most affected. Goiter reaches its greatest endemicity where the course of water is from rock strata of the Carboniferous period though it occurs among the more ancient Devonian and Silurian rocks and the more recent Permian and Triassic. In England goiter is practically absent in the Silurian, Devonian and Permian formations but is endemic in the Cretaceous from which, latter, it is practically absent in this country. Apparently, volcanic formations, the crystalline rocks of the Archaic period and all deposits laid down in fresh water are free from the goiter producing characteristic.

The regions of greatest endemicity in the United States, namely, about the Great Lakes and parts of West Virginia and Virginia are Palæozoic areas. Goiter is also slightly prevalent in parts of New Hampshire and here again this formation occurs. We again find the Palæozoic era represented at Edmonton, Province of Alberta, Canada, where reports would indicate the highest endemicity to be encountered in North America. It is interesting to observe at this point in West Virginia, goiter follows the coal

measures more particularly than the limestone formations with which it is commonly associated. This seems to be contrary to the experience of Clark and Pierce of the United States Public Health Service, which made a study of goiter among the school children of eleven counties of West Virginia and nine counties of Virginia.

This association of goiter with certain geologic time would indicate that the disease is not caused by a living organism, but is due to some substance derived from marine animals in past time. What this substance is is not known, but experiments indicate that it is not retained by a Berkefeld and that its goiter producing property is destroyed by heating to 70°C. It is, of course, possible that goiter is a deficiency disease, that the marine animals of geologic time used up a certain substance in the water that is essential to animal economy. This theory is severely shaken, however, by the fact that heat evidently destroys the goiter producing element but nevertheless it should not be entirely abandoned at the present stage of our knowledge.

I might go on almost indefinitely citing hypotheses that have been put forward as to the causation agent of goiter and the evidence that apparently destroys these theories but as it is I have scarcely yet touched upon the topic at hand, endemic goiter as a public health problem. It seems to me that any disease that can be prevented by known lines of procedure presents a public health problem and goiter is such a disease. To illustrate, a West Virginia doctor who has a large rural practice in the mountainous region, observed that the evidence of goiter along the stream beds was high but that on the sides of the hills it gradually fell off. Close observation indicated that the water above certain coal measures did not contain the goiter producing characteristic, consequently this doctor urged families to secure their drinking water from above these coal seams. He states that goiter has been materially reduced in those homes where his advice was followed. At another time he prevented a small town from introducing a drinking water supply as the only source that could be made available with the funds at hand was from a known goiterous area.

Goiter presents phases that should be of interest to health offices in those areas in which it occurs and it is to be hoped that the disease will be given more study in order that its cause may be definitely determined, for without accurate knowledge of the cause of a disease, any measures to combat it may be hit or miss. There can be little doubt that the efficiency of a community is lowered by endemic goiter and consequently the spread of the disease should be prevented.

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Full-Time Health Officer.—The Clinic in the *Boston Transcript* in its many topics stops for a moment to speak of the "full-time health officer." The man under consideration is S. G. H. Moore, M. D., D. P. H., of Huddersfield England, and the items with which he occupies himself are thus set forth: He is medical officer of health to the borough, medical superintendent of hospitals, chief medical officer to the education authority, administrative tuberculosis officer, chief inspector of midwives, and to fill in any spare chinks of time, he lectures on public hygiene and sanitation at the local technical college.

This Man was Fussy-Particular.

"At least a hundred persons have wiped themselves on that towel, and you are the first one to complain about it," is the story which the *Wisconsin Health Bulletin* tells about the common towel. It was said by a female hotel keeper in a country town to a city guest who was used to better things. In Wisconsin, as in a good many other states, every hotel is required to furnish individual towels in the rooms and in public lavatories, with clean sheets and pillow cases for the bed to be occupied by each guest.

PROSTITUTION AND COMMUNITY SYPHILIS.

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In Porto Rico, where half the older Spanish soldiers and one-quarter of an American army of occupation had venereal infection, isolation and care of prostitutes reduced the increase to only four new army cases in six months among twelve thousand men. This shows the possibilities of prevention. : : : : : : : : :

A RECENT study made possible by the mobilization of over 12,000 men of the National Army, and the enforcement of repressive acts against prostitution, have emphasized the close relation between prostitution and community syphilis. The study is peculiarly interesting in that it was made on the Island of Porto Rico. Although only 40 by 90 miles in area, this island has a population of a million and a quarter. There is very little movement of the people. Immigration and emigration are very slight. The proportion of whites to blacks is about four to one. Mixtures of the two are numerous and in varied proportions.

Prostitution on this island has been a protected enterprise. Until October, 1917, the system of inspection and regulation was in force in the largest city, San Juan. An intricate card system had been in vogue earlier, but during the last years only the yellow ticket was used, and a woman possessing one was known as a "card woman."

An "Especial Hospital for Women" had been established in April, 1905, and except for the year 1910–1911, remained open continuously until October, 1917. The "card woman" to carry on her trade legally was required to report daily at the hospital to be examined. If necessary she was treated in the out-patient department or, if her condition warranted it, she was admitted for bed treatment until rendered non-infectious. Each day that the woman appeared, her card was dated and the result of the examination noted.

For this purpose a staff of doctors, practicantes, and nurses examined, treated and rated the women who either voluntarily or because of police activities, appeared before them.

The reports of this hospital show the extent of the licensed social evil in San Juan alone. There were registered from April 16, 1912, to October 12, 1917, 1,691 women of whom 518 were registered for the first time during the four years from July, 1913 to July, 1917.

A copy (translation) of the report of the last full year of the hospital* shows 1,540 women clinically examined at the out-patient department; only 338 being admitted for bed treatment. (Table II).

In other cities of the Island, the card system was not used, but the police registered the public women and in some measure kept the industry on a peaceful basis.

The San Juan "Especial Hospital" was discontinued at the time when Federal officers advised the municipality that such a hospital was illegal in view of the opening of the army cantonment within five miles.

The confinement of a large number of prostitutes through the activities of the

*Report of the Mayor of San Juan to the Governor, fiscal year 1916–1917.

Attorney-General of Porto Rico* made medical examinations possible. At the Hospital Jail of Ponce, 43 women among the 332 confined, or more than 12 per cent, had infectious syphilitic lesions. The lesions had all been neglected and none of the patients had had any treatment prior to admission. Of the lesions seen, we had: chancres, 13; mucous patches, 2; condylomata lata, 19; skin syphilides, 8; congenital syphilis, 1.

The routine blood Wassermann test was done on all patients. The number of four plus Wassermann tests on women without lesions was 119. The percentage of women who were without lesions but had four plus Wassermann tests was 42 per cent. This indicates that this number at least were in the latent tertiary stage or the stage of potential active syphilis. The syphilitic index was 50 per cent since 165 of the 332 women were positive clinically and serologically.

In the San Juan institution, we found 2 cases of chancre; 1 case of syphilitic ulcers of the cervix; 1 case of incised and ulcerating inguinal adenitis; 1 case of secondary macular papular syphilide; and 10 cases of condylomata lata. On routine blood examination of all patients we found 62 with four plus positive Wassermann reactions.

At Arecibo, the social diseases among the 332 women were especially prevalent. Twenty per cent of the women had active infectious syphilitic lesions, and 70 per cent gave four plus Wassermann reactions.

At the three jails, 12 per cent of the women had dangerously infectious syphilis; 42 per cent more on routine blood examination had four plus positive reactions. Since the Wassermann is effective in only 80 per cent of latent tertiary syphilis, this indicates that 8 per cent more were in the latent stage, free of lesions, in whom one examination did not give the positive results. The true index of syphilitic infection among the women is, therefore, 62 per cent.

Comparative figures from Vedder, "Syphilis and Public Health" are very interesting. "Average figures are probably given by Kneeland, who says that the records of the Bedford Reformatory for girls show that 20.56 per cent of the 647 inmates have clinical manifestations of venereal disease. With the Wassermann test, 224 or 48 per cent have positive reactions and 30 or 6.4 per cent gave doubtful reactions.

"In a later statement, Davis says that 51 per cent of the inmates of this reformatory are syphilitic. Walker in an examination of 337 prostitutes in Baltimore found that 57 per cent gave a positive Wasserman reaction.

"Sullivan and Spaulding find among 63 women arrested for alcoholism only, syphilis was found in 42.8 per cent, while 9.6 per cent showed a doubtful Wassermann. Among 94 women arrested for alcoholism and other offenses, syphilis was found in 46.8 per cent, with 14.9 per cent more showing a doubtful Wassermann. Among 243 prostitutes, syphilis was found in 65.5 per cent with 9.5 per cent more showing a doubtful Wassermann. Among the entire 500 consecutive cases who were all regular or irregular prostitutes, 44.7 per cent were undoubtedly syphilitic, while 9.5 per cent more had a doubtful Wasserman."

Twenty years ago an American Army of occupation came here. Its venereal admission rate for the first six months was 467.80 per thousand.* Nearly a fourth of the command were victims of syphilis, gonorrhea, or chancroid, rendering them ineffective. At this time the venereal rate for the continental United

* See Special Report to the Governor for the year ending December 31, 1918.

* Reports of Military Governor of Porto Rico, 1899–1900.

States Army was 84 per thousand. This marked difference between armies at home and at colonial stations is paralleled by the rates for the British troops at home and in India.

The average rate for the Spanish troops stationed at Porto Rico prior to the entry of the Americans was for the five year period from 1889 to 1893, 338 per thousand; and from 1894 to 1898, 431 per thousand; 1898 gave 566 per thousand which was the highest recorded. Even recently, conditions were such as to warrant placing San Juan on the "black list" of visiting navies. Since 1903, no warship of any nation had allowed shore leave at this port, which is only six miles from where Camp Las Casas was organized.

On the entrance of the 12,000 men to the training camp, they were especially scrutinized for the venereal diseases, including syphilis. There were registered at the Venereal Office: chancres, 30; secondary syphilis, 18; tertiary syphilis, 124, mainly scar cases.

On routine examination of enlisted cooks and bakers, 74 of 279, or 26 per cent, were four plus positive.

Of 22 civilian cooks, whose ages were not limited to 31, we had seven with a four plus reaction, or 33 per cent positive for syphilis. In these studies we do not include the inconclusive results of one or two plus positive reactions.

It is interesting to compare these figures with those obtained in other sections of the United States. Pusey, in "Syphilis as a Modern Problem," states:

"The best estimates that we have in America come from some examinations of men in the public service. Reasoner from a study of one regiment of the United States Army estimates that 7 per cent of the men were syphilitic. Bartlett for another regiment estimated that 10 per cent were syphilitic.

"Vedder and Hough from a valuable study of 1,283 cases in the government hospitals for men in the public services from all parts of the United States estimate that 10 per cent represents closely the prevalence of syphilis among the men in the United States.

"Nichols of the United States Army, who has given great attention to the subject of syphilis in the army believes that for the army as a whole, the rate is something over 5 per cent, and contrary to the common impression, that syphilis has a high percentage in the army, brings forward good reasons for believing that the prevalence of syphilis is not higher in the army than among men in general of the same age."

Craig in "The Wassermann Test," says:

"The most important and conclusive contribution to our knowledge of the prevalence of syphilis in the army, and consequently in civil life, has been made by Lieut.-Col. Vedder, who published his results in 1915. . . ."

In his work Vedder considered that all cases giving a double plus (four plus) reaction were without doubt syphilitic, while those giving a plus (three plus) reaction were probably syphilitic.

Occurrence of Syphilis in the Army from Vedder.

Classes	*Total tested*	*Estimated total number of probable syphilitics. Per cent.*
Recruits	1,019	16.77
Cadets	621	5.46
White enlisted	1,577	16.08
Colored enlisted	1,472	36.00
Porto Rican Regiment	531	55.93
Military convicts	1,145	21.65
Insane soldiers	567	19.21
Tuberculous soldiers	229	39.00
Soldiers home	1,171	34.75

It is especially interesting to note from the above table that the estimated total number of probable syphilitics among the Porto Rican Regiment is 55.93, the highest recorded. This number closely approximates the figures obtained for the prevalence of syphilis among the prostitutes on the island, 62 per cent. It should be remembered in this connection that the Porto Rican Regiment is one in which the period of service for each member is long, since most of the men have repeatedly re-enlisted since the regiment was first formed in 1900.

We were able at Camp Las Casas to determine in 178 cases in the draft army at

what age the man acquired syphilis, and a table is appended; 96 of the 178 or 53 per cent of the men, acquired the disease between the ages of 20 and 24 years inclusive.

For comparison, the age at which gonorrhea was acquired is also given; 108 of 205 men, or 52 per cent, acquired gonorrhea for the first time between the ages of 20 and 24 inclusive. (Table III).

We learned also the city or town where 128 men acquired syphilis and 307 patients acquired gonorrhea. We tabulated the figures, side by side, with those showing the number of prostitutes sentenced or otherwise disposed of in those towns. Of course the number of infections acquired does not follow with geometrical exactness the number of women convicted of prostitution in the towns where the disease was acquired. The cities that had prostitutes in large numbers naturally gave us many cases, but more remarkable still, the cities from which no cases of venereal disease came to camp had no women either denounced or arrested as prostitutes. (Table I).

It is not possible to give further accurate statistics on the prevalence of syphilis among the women of the island since the reports to the Board of Health are not complete nor accurate. The reports of causes of death are notoriously unreliable since syphilis is seldom given although the disease may have had a syphilitic origin.

The reports of stillbirths and miscarriages is interesting and may throw some light on prenatal syphilis. The total number of viable births for the year ending June, 1918, was 43,261. During the same period, 16,002 deaths of children under five years occurred. The table gives the classification.

Stillbirths	3,797
Enteritis in children under 2 years	4,289
Enteritis in children between 2 and 5 years	3,452
Congenital debility	1,213
Rickets	927
Meningitis, broncopneumonia, tuberculosis, heredosyphilis, heredoalcoholism, etc.	778
Neglect	602
Umbilical hemorrhage, neonatal cynanosis, infectious omphalitix, atelectasis, etc.	171
Whooping-cough	143
Diptheria	50
	16,002

This total represents 46.44 per cent of the general death-rate for all other ages and diseases, and is detailed as follows:

Children who died under 1 year	21.77
Between the ages of 1 and 2 years	12.14
Between the ages of 2 and 5 years	12.53

It has elsewhere been noted that syphilis may be reported under many a disguise. Special note should be made of the classification table, where 3,520 deaths are reported as congenital debility, rickets, neglect, etc. It is impossible, of course, to determine how many of these deaths may have been due to syphilis as the main or even contributory cause without autopsies and serological studies, but undoubtedly the number is high.

That the main source of infection is the prostitute and that with her isolation new cases of syphilis among the men of the community and from these to the women and children cease, was definitely proven in Porto Rico. By repressive measures, which made it difficult for the prostitute to ply her trade, the number of new syphilitic infections among 12,000 men in camp for six months was kept down to four.* The civilian population fared almost as well, but here we have to depend on the statements of the various specialists practicing on the Island rather than on official statements. The confinement of over 800 public prostitutes, 12 per cent of whom had infectious lesions of syphilis, certainly reduced the incidence of new infections. The number of possible infections looms up when we consider that these women had been receiving

* See Porto Rican Experiment, Social Hygiene Quarterly April, 1919.

visits from five to ten men a day. While in the jails set aside for them, the syphilitic women received the most modern and intensive treatment with salvarsan and mercury, for it was realized that they could be held only until their sentences expired and that it was not possible to keep them from practicing their profession on their release. Treatment of all infected with syphilis is the only way to stamp out this scourge of the race. Temporary spasms of virtue are necessary and effective for times such as we have just passed through, when national emergency requires immediate and strenuous procedures. In Porto Rico, the opportunity to make syphilis a thing of the past is now. A good beginning has been made. Fresh cases can be kept out. The old cases can be cured, and new infections rendered impossible. In a decade, this island should be the example to all the world as the test-tube experiment which proved that syphilis need not be.

TABLE I.

COMPARATIVE CHART SHOWING DISEASES AND WHERE ACQUIRED BY MEN PRIOR TO ENTRY INTO THE SERVICE AND THE NUMBER OF WOMEN SENTENCED AT THE MUNICIPAL COURT FOR THOSE TOWNS FROM JULY TO SEPTEMBER 17, 1918.

Municipal Court.	*Urethritis.*	*Syphilis.*	*Total.*	*Women Sentenced.*	*Otherwise Disposed of.*
ADJUNTAS					
Adjuntas	2	1	3	22	0
AGUADILLA*					
Aguadilla	9	2			
Aguada	2	1			
Isabella	4	0	18	45	7
AÑASCO					
Añasco	1	0	1	2	3
ARECIBO					
Arecibo	14	8	22	71	1
BARROS					
Barros	1	0	1	0	0
BAYAMON*					
Bayamon	13	5			
Comerio	1	1			
Dorado	1	0			
Toa Baja	1	0	22	21	1
CABO ROJO					
Cabo Rojo	3	1	4	21	0
CAGUAS*					
Caguas	29	8			
Gurabo	0	1	38	73	4
CAROLINA					
Carolina	4	3	7	2	0
CATANO					
Cataño	3	0	3	0	0
CAMUY*					
Camuy	1	0			
Hatillo	1	0	2	23	4
CAYEY*					
Cayey	4	1			
Aibonito	2	1			
Guanica	1	3			
Cidra	1	0	13	0†	0
CIALES					
Ciales	1	0	1	0	0
COAMO					
Coamo	5	2	7	13	0
FAJARDO*					
Fajardo	1	0			
Cieba	1	0			
Nagiabo	1	1	4	3	4
GUAYAMA*					
Guayama	13	4			
Aguirre	0	2			
Arroyo	2	1	22	0‡	0
HUMACAO					
Humacao	5	2	7	4	3
JUANA DIAZ					
Juana Diaz	5	4	9	18	5
LARES					
Lares	0	1	1	13	3
MANATI*					
Manati	4	2			
Barceloneta	2	0			
Morovis	1	0	10	39	0
MAYAGUEZ*					
Mayaguez	35	6			
Hormigueros	1	0			
Maricao	0	1	44	82	4
PATILLAS					
Patillas	0	1	1	3	0
PONCE*					
Ponce	48	30			
Guayanilla	3	3			
Peñuelas	2	1	67	127	29
PUERTA DE TIERRA					
Puerta de Tierra	1	1	2	0†	0
RIO GRANDE					
Rio Grande	0	0	0	0	0
RIO PIEDRAS*					
Rio Piedras	3	1			
Guaynabo	1	0	5	22	1
SALINAS*					
Salinas	3	1			
Santa Isabel	2	0	6	1	1
SAN GERMAN*					
San German	6	4			
Lajas	2	0			
Sabana Grande	1	0	13	18	9
SAN JUAN					
San Juan	21	0	21	0†	0
SAN LORENZO*					
San Lorenzo	1	2			
Juncos	3	1	7	0	7
SAN SEBASTIAN					
San Sebastian	2	0	2	9	7
SANTURCE					
Santurce	7	5	12	0†	0
UTUADO					
Utuado	4	2	6	19	0
VEGA BAJA					
Vega Baja	7	1	8	13	0
VIEQUES					
Vieques	4	3	7	10	1
YABUCOA					
Yabucoa	0	1	1	0	0
YAUCO					
Yauco	8	8	16	28	12
MARTINIQUE	1	0	0	not in Porto	
SANTO DOMINGO	2	1	3	" " "	

*Court center for a number of cities enumerated.

† These cities were in ten mile zone and at this time no women were either denounced or arrested before the Municipal Court.

‡ This city was very lax in its campaign. Later reports show women arrested.

TABLE II.

ESPECIAL HOSPITAL FOR WOMEN.

CHART SHOWING THE CASES TREATED FROM JULY 1916 TO JULY 1917.

OUT-PATIENT DEPARTMENT.	
Women clinically examined	1,540
Women examined for the first time	117
Treatments	46,858
HOSPITAL BED PATIENTS.	
Treatments	13,907
Cases remaining June 30, 1916	38
Cases admitted to hospital	338
Cases discharged	336
Cases remaining June 30, 1917	40
Died	0
DISEASES TREATED.	
Gonorrhea	332
Chancres	314
Syphilis	40
Secondary syphilis	30
Ulcers of cervix uteri	52
Adenitis	15
Ulcerating adenitis	11
Bartolinitis	21
Abscess of vulva	8
Abscess of other parts	19
Venereal warts	26
Condylomata	11
Measles	3
Typhoid	3
Abortions	2

TABLE III.

VENEREAL INFIRMARY.

(CAMP LAS CASAS.)

AGE AT WHICH PATIENTS ACQUIRED VENEREAL DISEASE.

Age.	*Gonorrhea.*	*Syphilis.*
11	0	1
12	0	1
14	0	1
15	2	4
16	1	4
17	7	8
18	7	10
19	14	8
20	19	19
21	28	24
22	26	25
23	21	18
24	24	10
25	17	14
26	4	8
27	8	5
28	8	5
29	7	6
30	12	6
31	0	1
	205	178

108 of the 205 or 52 per cent of the gonorrhea was acquired between the ages of 20 and 24 inclusive.

96 of the 178 or 53 per cent of the syphilis was acquired between the ages of 20 and 24 inclusive.



An Ambulance in Guatemala.—This unique picture, from the camera of Edward Stuart, of the American Red Cross Relief Expedition which followed the earthquake in Guatemala early last year, presents a most primitive style of ambulance. In a country where the natives are accustomed to bear their burdens on the head, this mother came to the hospital carrying her baby in this way. The hospital work of the expedition was under difficulties for a while. The local hospital was in ruins, the native services altogether disarranged, the water supply was broken and disorder reigned. Mr. Stuart and his colleagues established a tent city, laid a surface water system, cared for the sewage and set up a hospital. The city was provisioned, medical supplies furnished, the startled populace sent back to their homes or induced to build new ones, and in five or six months the Red Cross was able to cease its special work and leave the continuance of the relief in the hands of the local authorities. Incidentally means were taken to stop the pollution of the water supplies, to establish chlorination plants, and to furnish to the city a good foundation for future sanitary work.

FUNCTIONS AND PLAN OF ORGANIZATION OF DIVISION OF INDUSTRIAL HYGIENE.

C. D. Selby,
Consulting Hygienist, U. S. Public Health Service.

Read before Industrial Hygiene Section, American Public Health Association, at Chicago, Ill., December 10, 1918.

Protection of the industrial worker is the key-note of this story. Difficulties which an important government agency discovers are set forth, and the author tells how to overcome them, not forgetting first, the education of the people which must be the foundation of all reform.

THE necessity of creating a governmental agency for the protection of the health of industrial workers was made evident by the war-time need for conserving industrial man power. The agency created for this purpose now exists as the Division of Industrial Hygiene and Medicine, of the Working Conditions Service, Department of Labor, the personnel of which consists of officers detailed from the United States Public Health Service.

Although the relations of the Division were fixed by arrangements effected under authorization of an executive order of the President and its functions were more or less determined by the requirements of those relations, it was deemed wise, in creating the organization, to make it sufficiently broad in scope to enable it effectively to handle not only the exigent industrial health problems of the war period and those of the readjustment period, but the ordinary industrial health problems of peace as well.

Need of Standards.

In determining the activities pertinent to this comprehensive yet wholly justified purpose and the organization most capable of directing them, due consideration was given to the most excellent pioneer work that has been done by other governmental agencies and state departments and by individuals in institutions of learning and in certain of the industrial establishments. Much information—in the form of codes, laws, and publications—is already available from these sources, and some is here and there in process of development. However, there appeared to be a need for the collation of existing information, its formulation into standards and the promulgation of those standards, to serve as guides for the determination of state and municipal codes and laws and as suggestions for industrial methods of procedure in safeguarding workers against impairments of health and body.

There likewise appeared to be a need for the coördination of researches in order that data from various sources might be strengthened by association with those from other sources and thereby caused to lead to more influential conclusions, and also in order that individuals with inclinations toward research might be inspired to study certain important but as yet unilluminated questions concerning occupational diseases and industrial poisons.

Endeavor to Affect a Friendly Leadership.

The recognition of these needs resulted very naturally in the founding of the first principle in the policy of the division, which is that it will endeavor to effect a

friendly leadership in all matters of industrial hygiene and medicine.

Being the duly authorized national agency it is reasonable that the division should assume this leadership, and being desirous of creating a national spirit of coöperation in the humane and economic movement to conserve industrial man power, which is the greatest and most valuable—though not as yet the most valued—resource of industry, it is reasonable that the division should endeavor to make its leadership friendly.

Committee on Standards.

In conformity with this principle, and in recognition of the need for standards, a permanent committee on standards is now being organized, with a personnel, representative, and of outstanding abilities. In their selection of subjects for standards, the committee will be advised by the officers of the division, whose contacts will from time to time suggest the necessity of special standards, and in their work of formulation they will be assisted by an officer detailed to act as executive secretary for the committee under the direction of their duly appointed chairman. Upon occasions when expert advice is desired, the committee is to be empowered to appoint auxiliary members to act temporarily for the purpose of offering such advice. Researches to provide essential data will be conducted by the Research Section of the division.

Research Section.

This section, already organized and in operation, is the designated agency for the pursuit of all researches that may be required by the division. Like the Committee on Standards, the Research Section conforms to the principle of friendly leadership, and in doing so seeks to affect a coördination of hygienic and medical studies in industry which are beyond the jurisdiction of the division—this for the purpose, it is repeated, of defining the relations of those studies to others of similar character and of strengthening them through the determination of their proper relationships. The section, furthermore, encourages in appropriate ways, the pursuit of special researches in institutions of learning, industrial establishments, hospitals and elsewhere.

It is realized that if the division is to apply its principle of friendly leadership effectively, it must exert itself to be of practical use in the reduction of hazards to the health of industrial workers and to the reduction of time lost because of impairments that have occured despite preventive measures. This realization has inspired the division to adopt a second principle, which is perhaps but a phase of the first, and that is a determination to be of practical service. In attempting to put this principle into effect due cognizance is taken of the fact that the division is quite dependent upon other agencies, and that after all the employers, the industrial physicians and hygienists, the community health officers and the state boards of health and labor are finally responsible for the results. It is through them chiefly that the division must operate in carrying out constructive measures. It must serve not only in the devising of standards and in the promoting of researches, but in assisting to put both standards and researches to practical use as well.

Points of Contact.

Prior to an attempt to devise a plan for operating through these various agencies, a tentative analysis of the industrial health problems was made and, without going into the details of this analysis, it may be said that it suggested definite points of contact, which may be grouped as follows: (a) other governmental and

state departments and private agencies, (b) local boards of health, (c) industrial medical departments and (d) institutions of learning. The analysis also suggested means for the development of these points of contact and preliminary programs for carrying out constructive measures through them.

The relationship of the division to (a) other governmental and state departments is largely a matter of policy and, therefore, rests with the administrative officer of the division. It is his purpose to determine and cultivate these points of contact as rapidly as possible to the end that the division may be of greatest usefulness to them.

Community Program.

In approaching the community problems which concern the health of industrial workers it is deemed best to operate through the (b) local boards of health and through them with such social agencies as may be of assistance to them in the carrying out of the remedial program that has tentatively been determined upon. This point of contact is established by the Industrial Zone Hygiene and Medicine Section of the division.

The program which the section desires to put into effect is as follows:

A. Facilities for instruction in the prevention of disease.

B. Health supervision over recreation and amusement.

C. Adequate laws governing sanitation, food, milk and water supplies, control of communicable diseases and housing.

D. Endeavors to secure enforcement of the foregoing laws.

E. Adequate health supervision (health department) including prenatal and postnatal care of children and medical inspection in the schools.

F. Ample facilities for the relief of sickness including hospitals, clinics and visiting nurse service.

G. Competent physicians.

In order to put the foregoing program into effect the division

1. Installs and supervises departments of health and sanitation in industrial centers under government control.

2. Develops facilities in industrial centers for the safeguarding of workers against hazards to health not otherwise provided for.

3. Determines educational service for the people of industrial centers.

Plant Hygiene and Medicine.

While it is true that industrial hygiene and medicine are preventive and curative medicine applied to the needs of industrial workers, and as such are not new, it is also true that the method of applying them to those needs is yet in process of evolution, evolving from a purely surgical phase of medicine to the whole theory and practice of medicine applied to industry with special attention to prevention, surgical and medical.

Parenthetically it may be said that surgical prevention includes adequate care of injured workers to the end that loss of time and function following injuries may be reduced to the minimum. It may also be said that preventive medicine in the industries includes measures necessary to the reduction of time lost because of sickness, which of course includes the prompt return of sick workers to occupations they may be capable of following, though perhaps not wholly restored to their former conditions of health.

In applying the theory and practice of medicine to (c) the needs of industrial workers, which is done through the Plant Hygiene and Medicine Section of the division, special attention is given to the preventive aspects, and the program which has tentatively been decided upon for the guidance of plant physicians and sanitarians is as follows:

A. Standardization of occupational requirements.

B. Physical examination of workers under various circumstances for vocational placement, rehabilitation and preservation of health.

C. Vocational placement of workers.

D. Hygienic and sanitary inspections of plant.

E. Researches in special hazards.

F. Health instructions to workers.

G. Provisions for and supervision of health maintenance including rest, recreation, exercise, food, milk and water supplies.

H. Control of communicable diseases.

I. Treatments of trivial ailments.

J. Treatments of injuries, including preventive and reconstructive surgery.

K. Special treatments including dental and ocular.

L. Laboratory and x-ray services.

M. Assistance to workers in obtaining medical services when they are otherwise unable to procure them.

N. Visiting nurse service on certain occasions.

O. Coöperation with other establishments and local, state and national health authorities.

P. Records and reports concerning morbidity among workers.

Q. Scientific publications, meetings and conferences.

The manner in which the section is seeking to further this purpose is epitomized as follows:

1. Installs and supervises medical departments in United States government plants.

2. Develops medical departments in privately owned plants on request.

3. Develops facilities in industrial centers for care of workers not otherwise provided for.

4. Consummates arrangements for conference groups of industrial physicians, sanitarians and nurses.

5. Develops discussions on industrial medical topics before scientific societies.

6. Determines educational service for industrial physicians, sanitarians and nurses concerning (a) standards, (b) results of investigations, (c) recent publications and (d) scientific meetings.

Demand for Trained Industrial Physicians.

It was soon found, in seeking to find personnel for the organization, that there is apparently a rapidly growing demand for trained industrial physicians and sanitarians which exceeds the supply. This in turn leads to a realization that if hygiene and medicine is to be elevated to the degree of effectiveness that is wished in the conservation of industrial man power, there must be created a supply of well trained men to carry on the work, and that after all the success of the program to be put into effect in the establishments depends upon the quality of the plant physicians in charge.

It was, therefore, apparent that the division must create an agency for the development of (d) educational facilities in the hygiene and medicine of industry. Such an agency has been created; it is the Personnel and Education Section. It proposes not only to develop educational facilities, but to create a registry of industrial physicians, sanitarians and nurses as well, in order that it may assist employers in procuring physicians and others of ability to man their medical departments. The activities of this section are mentioned as follows:

1. Encourages and supervises courses of instruction in industrial hygiene, medicine and nursing.

2. Organizes a reserve corps of industrial physicians and hygienists.

3. Provides for annual post-graduate courses of instruction available to all officers of the corps.

4. Operates an industrial medical register to assist employers in obtaining industrially-trained physicians, sanitarians and nurses.

5. Operates a register of post-graduate educational opportunities for industrial physicians, sanitarians and nurses.

6. Determines educational service for the general medical profession.

Statistics Are Necessary.

As a means toward competent leadership, the formulation of standards, the pursuit of researches and the development of industrial hygiene and medicine in plants and their zones, the periodical procurement of data and their statistical tabulation and interpretation are quite fundamental. For the purpose of carrying on such work, the division is organizing a Reports and Statistics Subsection, the purposed activities of which are as follows:

1. Procures periodical reports from industries and industrial zones.

2. Tabulates and interprets statistics.

3. Studies and disseminates information on schedules for researches in industrial hygiene and medicine.

4. Coöperates with other investigating agencies in the interpretation of data concerning industrial hygiene and medicine.

General Education Is Important.

It is readily evident that the division can not consummate the desired results unless there is a demand for industrial health supervision among workers, employers and the public, the demand from the latter being expressed by authority vested in governmental, state and local departments. It is, therefore, proposed to conduct, through the Edits and Reviews Subsection, a continuous educational campaign. This is in no sense to be a propaganda program; it is not necessary to influence opinion. The campaign is solely for the purpose of informing all people concerned on (a) the benefits of industrial hygiene and medicine in the prevention of sickness and loss of time and earning capacity from sickness and injury and (b) how they can avail themselves of these benefits. The activities delegated to this subsection are as follows:

1. Files information relating to industrial hygiene and medicine.

2. Prepares and distributes reviews relating to industrial hygiene and medicine.

3. Edits reports.

4. Prepares and distributes all educational matter.

5. Encourages the publication of articles concerning industrial hygiene and medicine.

The Division of Industrial Hygiene and Medicine is then the duly authorized agency of the national government for the conservation of industrial man power, which is a humane and economic objective appropriate to peace as well as time of war.

In approaching this objective the division proposes (a) to initiate and encourage researches in industrial hygiene and medicine, (b) to determine standards and aid in their promulgation, (c) to develop preventive medicine and surgery (including the medical and surgical phases of the rehabilitation of impaired workers) in the industries and the industrial zones, (d) to develop facilities for the training of physicians, sanitarians and nurses for industrial service, (e) to develop a system of industrial vital statistics and (f) to inaugurate an active informational campaign—all to the end that the health and lives of the industrial workers may be safeguarded against the hazards of industrial service.

◈

Upon the Life of Bacteria in Liquid Media Additioned with Sugars.—In a previous very recent work on the life of the colon bacillus in liquid glucose media, these authors reported (1) regular and rapid multiplication up to the point of a fixed numerical destiny, after which there occurs a sudden arrest of growth; (2) beginning of fermentation with production of gas at the same moment when the multiplication of bacteria is arrested; (3) considerable diminution of the vitality of the culture from the arrest of its growth (95 per cent of the bacteria die in 30 hours; in 6 days the medium is completely sterile). This raised the question whether this behavior is peculiar to the colon bacillus and to glucose, or whether it is the same for other bacteria and other sugars. The present paper deals with the solution of this question.

In addition to the colon bacillus, the following organisms were studied: paratyphoid A and B, typhoid, proteus and Shiga's bacillus. Aside from variations of the numerical density and the acidity, which are peculiar to each species, all of the organisms studied behaved like the colon bacillus.

In addition to glucose, the following sugars were studied: galactose, maltose, lactose, mannite and dulcite. With the exception of dulcite, which appears to be attacked in a special manner now being studied further, all of these sugars appear to be attacked like glucose.—Besson Ranque and Ch. Senez: *Compt. Rend. Soc. de Biol., Paris* 82, 107 (1919).

EDITORIAL SECTION

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THE RETURN OF THE MEDICAL OFFICERS.

That the Army military régime has been of great benefit to the medical officers who went to it from civilian life cannot be gainsaid. Thousands of physicians gave up their civilian practice and their comparatively comfortable existence, with their relatively dilettante interest in public health and sanitation. In its place they underwent severe training, and substituted a regulated, rigorous life of soldiery. To some it was a dangerous life, to many a hard life, to all a different life. Probably the greatest point of divergence from their previous life was in their duties of devising and enforcing military sanitary regulations, from prophylaxis to camp policing, and in adhering to such regulations themselves.

From an occasional thought by some about public health administration and operation, organized group sanitation became a daily routine to practically the entire medical department. And it was modern sanitation and personal hygiene, practically applied.

Many physicians, whose greatest previous responsibility of that nature had been to the individual patients, became responsible for the health and efficiency of large groups of young male adults under unusual conditions of existence. Respiratory diseases, venereal diseases, insect-borne diseases, had to be brought to the minimum in their debilitating influence. Non-effectives from all causes had to be eradicated. Hence the causes creating non-effectives had to be discovered, corrected, and maintained at the lowest standard.

What a school for sanitarians resulted! And through the daily routine of keeping up the splendid standard of physical efficiency, the medical officers became not only better physicians but sanitarians as well. Every medical officer should return to civilian life an earnest advocate of effective public health administration. It does not seem too much to expect that the daily routine of conscious healthy living should have imbued every medical officer with a subconscious desire toward the continuance of such living, not only for himself, but for his community and all communities.

A satisfactory index that much has been accomplished in instructing erstwhile civil practitioners in modern public health methods, and in sowing the germ of desire to utilize their knowledge for the benefit of others, is manifested in the fact that many

medical officers upon relinquishing the military, are becoming public health officers. If urban and rural districts which are beginning to seek either full-time health officers or more effective health administration, would only look toward the demobilized medical officers, the spirit prompting such communities' desire for the betterment of their public health would bear fruit. The school of military experience has been second to none in the preparation of the public health administrator.

A. D. Hiller.

It is necessary to have a means of communication between the army medical officers willing to enter into the new service and the community desiring bettered public health administration. Here the Journal would call attention to the American Public Health Association's Health Employment Bureau. This Bureau has recognized the coming need of an intermediary between the officer and the municipality, and is offering its services free to members of the Association.

WANTED: AN IDEA.

The American Public Health Association needs an emblem and offers seven prizes for suggestions or designs:

$20 for the best suggestion,
10 for the second best, and
5 each for the five next best.

A good design is needed for use on the letterhead, membership certificate, and publications of the Association, and this design will be especially desirable for the use of affiliated state health societies.

No restrictions are placed on the number or character of the ideas which may be offered. It is suggested, however, that the design be fairly simple so as to be easily understood, that it have attention value, and that it be easy to remember and to relate to the American Public Health Association.

Some of the effective designs now in use are: The well-known bell of the Bell Telephone Company, the rock of the Prudential Insurance Company, which has "the strength of Gibraltar," and the seal of the Child Health Organization, showing two children in happy, care-free pose, within a circle.

Another type of design which may be considered is that of a seal or coat of arms. The English coat of arms, for example, is not only dignified, but interesting and attractive.

Conditions of Prize Offer.

1. Any member or subscriber of the Association may enter the contest.

2. The number of suggestions made by one individual is not limited. Each suggestion should, however, be on a separate sheet of paper and enclosed in a separate envelope. Each suggestion should have on the sheet a pseudonym, and within a sealed envelope in the same enclosure the pseudonym together with the real name of the contestant. The judges may thereby give their decisions without knowing the name of the contestant.

3. A sketch will be helpful, even if crude.

4. Suggestions or designs should reach the Secretary, American Public Health Association (169 Massachusetts Avenue, Boston, Mass.), not later than September 1, 1919.

5. Announcements of the prize winners and of honorable mentions will be made in the publications of the Association.

6. The offer is contingent upon at least twenty-five replies and suggestions.

7. Awards will be made by a sub-committee of the Board of Directors.

8. Should circumstances make it desirable, the closing date of the competition may be deferred.

How to Get Ideas.

Clip this notice and paste it in your hat. This will remind you each day to give a few minutes' thought to the matter as you ride or walk to your office. Talk over your ideas with your associates.

To furnish the emblem of a great national organization—the association of your own profession—will be a real honor. This emblem will be used during years to come. Give the matter thought during your spare moments, and send in your ideas.

EDITORIAL NOTES.

Members of the American Public Health Association are requested to send promptly to the Secretary at 169 Massachusetts Avenue, Boston, Mass., any change in address. This will enable the Association to keep its lists and addressing machinery in up-to-date condition, and will help in economy by preventing the losses which ensue through sending letters or magazines to the wrong address. With its fast increasing membership the factor of loss through such causes becomes of greater consequence. This is a preventable loss which the upholders of the principle of preventive therapy should consider seriously.

If any one would like to purchase a health railway car, fully fitted and furnished, the State of West Virginia has one which can be sold to them. This car illustrates one of the unfortunate conditions of public education in matters of public health in the country, where support is sometimes difficult to secure for proper and valuable methods. This particular health railway car has an excellent record for the year that it has been in commission, but a legislature has failed to see its value, and neglected to make provision for it in the budget. This is not a unique instance, for if information is not at fault, a prominent city in Ohio has an auto-dispensary now on the shelf after a year of service, on account of lack of appropriation, when every sanitarian realizes what a force for good such a mobile auxiliary to the ordinary health machinery may be. In similar fashion, the splendid principle exemplified in the Lake George Sanitary District has barely missed wreck, owing its immediate continuance to a governor's veto. It is important for the future of public health that the education of the people be made fundamental, for what the people recognize to be right, they will be able to communicate in no uncertain terms to their representatives.

BILL IN CONGRESS FOR DEPARTMENT OF PUBLIC HEALTH

In the House of Representatives on June 13, 1919, there was introduced by Mr. McDuffie of the first Alabama district, a bill, H. R. 5724, providing for the creation of a department of Public Health and the support of it by an annual appropriation of ten million dollars. The bill, which was referred to the Committee on Interstate and Foreign Commerce, and ordered to be printed, provides first for the creation of an executive department in the Government to be called the Department of Public Health, with a Secretary of Public Health, who is to be the head thereof, to be appointed by the President, by and with the advice and consent of the Senate. He shall receive a salary of $12,000 per annum, and his tenure of office shall be like that of the heads of other executive departments. For the personnel there is prescribed one Assistant Secretary at $7,500 per annum, to be appointed by the President, and such office staff or agents as may from time to time be provided for by Congress.

The President is empowered by the bill, in his discretion, to transfer to this department the officers, bureaus, divisions, boards or branches of the Government, now related to executive departments or independent, which are devoted to health matters which concern the United States as a whole, or the public health system of any state or states, which in his judgment should be controlled by the Public Health Department. Exceptions to this assembling of health functions are the Medical Corps or similar adjunct branches of the Army, Navy and Marine of the United States.

Provision is made in the bill for eight bureaus: (a) Sanitary Research, (b) Child

Hygiene, (c) Vital Statistics and Publications, (d) Foods and Drugs, (e) Quarantine, (f) Sanitary Engineering, (g) Government Hospitals, and (h) Personnel and Accounts.

The duties of the Department of Public Health are to include the fostering and promotion of all matters tending to the conservation and improvement of the public health, and the collection and dissemination of information relating thereto. It is to coöperate with states and territories, yet observe strictly the principles of states' rights. Coöperation is to be secured by the states through sharing of the expenses with the Government of the proposed health improvements.

Other sections provide for an advisory board, if desirable, to serve without compensation, traveling expenses excepted, and the organization of such a board is outlined. The Secretary is to issue an annual report to Congress and such other reports as may be required or found necessary.

For the maintenance of the department there is provided an annual appropriation of $10,000,000, beginning with the fiscal year ending June 30, 1920. One million is to be devoted to coöperating with the states in establishing a homogeneous system of health administration in the states; two millions are for bettering rural sanitation; five millions are to be allotted for the control of communicable diseases; and two millions are to be spent in scientific study. These sums may be used in coöperation with the states if the states so desire, but any state, territory or district sharing in the appropriations shall appropriate an equal sum from its own treasury to prosecute its portion of the work.

There are many minor provisions in the bill, including the legalizing of a seal which shall be recognized in the courts, the transfer of records, and the provision that the pay of transferred officials shall not be diminished by the transfer.

ASSOCIATION NEWS

HELP EMPLOYMENT BUREAU.

In order to help relieve the shortage of sanitarians due to the war, free help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Health Officer in Wisconsin, city of 21,000 population, 91 miles from Chicago. Salary, $2,500. Address J. A. J., No. 224, care of this JOURNAL.

Full-time, registered nurse for Venereal Disease Clinic in North Carolina. Salary to start, $100 monthly. Address L. E. C., No. 255, care of this JOURNAL.

A thoroughly trained bacteriologist, capable of supervising a laboratory in a Southern City of 75,000 population. Must be capable of making Wassermanns, chemical examinations of water and sewage, blood counts and general routine work. Technical reference must be supplied. Address T. W. M., No. 256, care of this JOURNAL.

Recent legislation in Ohio creates a demand for approximately 110 whole-time health officers with permanent tenure of office under civil service. Salaries range from $2,000 to $6,000 per annum. For further details write to Dr. A. W. Freeman, State Commissioner of Health, Columbus, Ohio.

State district health officers in Massachusetts. Written examinations will be held on July 14 and 15, in the examination room of Civil Service Commission, No. 15, State House, Boston, Mass. List of rules governing the appointment furnished by State Commissioner of Health, State House, Boston. Apply at once. Physical fitness a necessary prerequisite.

Male epidemiologist in the Subdivision of Venereal Diseases in Massachusetts. Examinations and applications according to preceding paragraph. Apply at once.

In Connecticut, man experienced in water, sewage, and industrial wastes analyses. Must be capable of making field surveys, and of laying out and directing the work of assistants. Salary, $1,800 to $2,000 according to ability. Address J. F. J., No. 213, care of this JOURNAL.

A State Board of Health is in need of a trained epidemiologist who can also do vital statistics work. Write qualifications and experience to L. E. N., No. 242, care of this JOURNAL.

In Minnesota, laboratory technician for the es-

tablishment of a Wassermann laboratory. Salary, $2,000. Address F. W. L., No. 245, care of this JOURNAL

Public Health Nurse wanted for Marion Co., Kansas. Salary $100 per month and traveling expenses. Address Dr. J. J. Entz, Hillsboro, Kansas. H. E. B. No. 261.

Competent bacteriologist to take charge and run the Lewisburg Laboratories, Inc., on a commission basis. Good building and good equipment, fine location. Good opportunity for the right man. State age and experience, give references, state whether married or single. Address Stuart & Watts, Lewisburg, W. Va.

DIRECTORS' MEETING.

A meeting of the Board of Directors of the A. P. H. A. was held at Atlantic City on June 12. Fourteen directors were present with Sir Shirley Murphy, K. C. B., and Mr. C. E. Turner for guests.

President Frankel reported on the effort to secure sustaining memberships and stated that the Association has now thirteen such members on its rolls. He expressed great faith in this kind of membership as a source of revenue and urged the directors to cooperate in enlarging the list.

The secretary reported on the membership campaign and showed charts exhibiting the distribution of A. P. H. A. members throughout the Union and the Provinces. A list was submitted of the members who had obtained two or more new members each. (The list and charts are to be found in this issue of the JOURNAL, immediately following this report.

A report was made concerning state health societies. Steps have been taken to organize state societies affiliated with the A. P. H. A. in Kansas, North Carolina, Maine, Michigan, Iowa, Kentucky, Indiana and Ohio. The opinion was expressed that it would be better not to prescribe at present a specific form of constitution, but to have the societies organize in the way that seemed best to themselves. Through experience it would be possible later to suggest some definite basis of affiliation.

The question of preparing a syllabus of public health was referred to the president, the secretary, Dr. F. L. Hoffman and Dr. W. C. Woodward.

It was voted to invite Sir Arthur Newsholme to deliver an address at the New Orleans meeting on "Public Health Administration in Great Britain."

Doctor Hoffman addressed the meeting on the necessity of reorganizing the federal health administration. There was discussion pro and con in which nearly all the gentlemen present took part, and it was voted that the president appoint a committee of three on Coördination of National Health Activities. This committee is empowered to coöperate with similar committees of the American Medical Association, Conference of State and Provincial Boards of Health and like bodies, with reference to health administration. The committee named is: President Frankel, Dr. W. C. Woodward and Dr. E. R. Kelley.

In his address to the meeting Sir Shirley Murphy brought the greetings of the British health profession and expressed the hope that closer coöperation could be effected. President Frankel responded.

A bill to provide for physical education in the United States through the Bureau of Education was referred to the committee last named.

In closing the meeting the president pointed out that the Association had never before been in such favorable financial condition as at the present time. He stated that if the present progress were to continue it would not be long before there would be a budget of $50,000, with which a creditable program for the promotion of public health could be undertaken. He urged the directors to coöperate towards bringing about this ideal.

CAMPAIGN NEWS.

The membership drive up to June 25, 1919, has resulted in a grand total of 867 names added to the list of members of the A. P. H. A. These have been secured through the efforts of interested members individually, and coöperatively when there has been a number of them together in attendance at a meeting of health officers. The following is the "Roll of Honor," and appended are graphic presentations of the condition of A. P. H. A. membership, which have been of service in the direction of the campaign.

ROLL OF HONOR.

Members who have proposed two or more new members during the membership campaign.

At the meetings when several members joined in getting new members their names are assembled under the place of meeting. These being coöperative efforts, the numbers are not included in the records of individuals.

33 INDIANAPOLIS MEETING

J. N. Hurty, M. D.	Indianapolis, Ind.
H. E. Barnard, Ph. D.	Indianapolis, Ind.
Noah D. Berry, M. D.	Muncie, Ind.
Hugh A. Cowing, M. D.	Muncie, Ind.
Wm. F. Shumaker, M. D.	Butler, Ind.
Lee K. Frankel, Ph. D.	New York City.

31. CONNECTICUT MEETING

T. E. Reeks	New Britain, Conn.
Lee K. Frankel, Ph. D.	New York City.

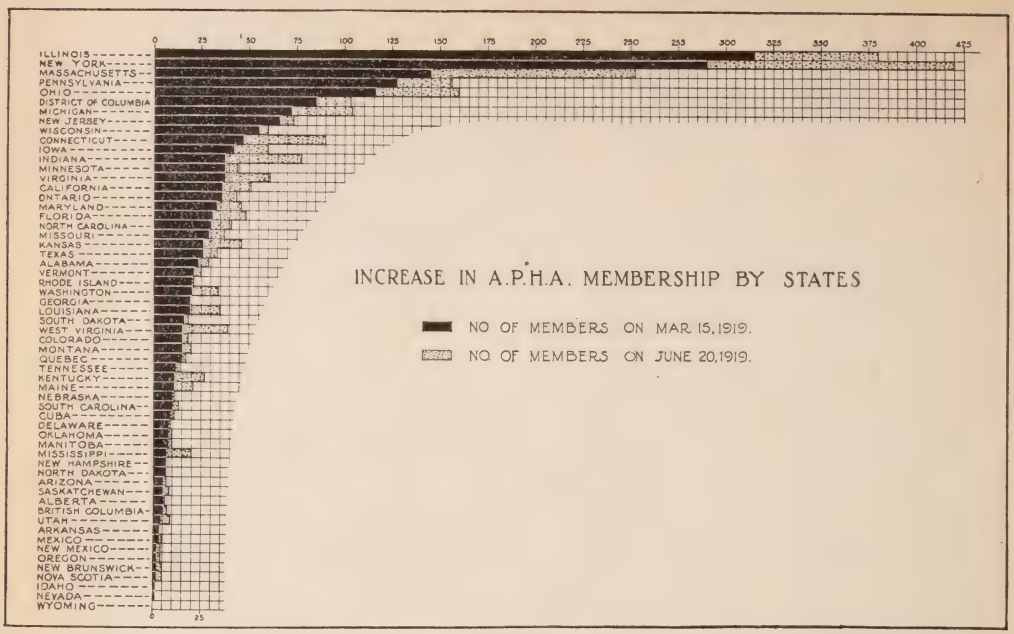
25 SYRACUSE MEETING

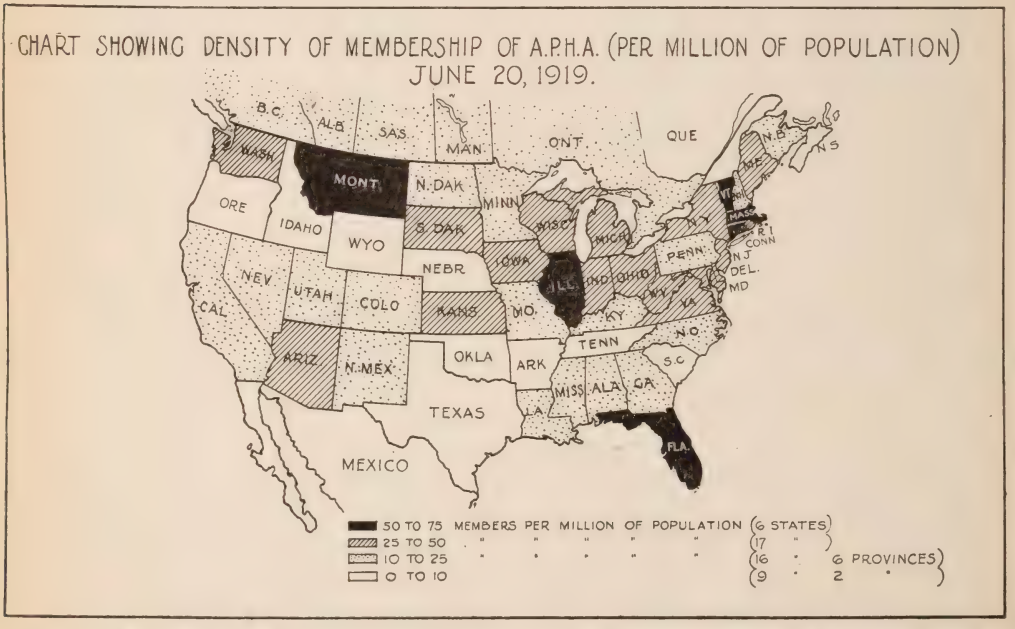
Lee K. Frankel, Ph. D. New York City.

6 DETROIT MEETING

Henry Vaughan, M. D. Detroit, Mich.
Richard M. Olin, M. D. Lansing, Mich.
Watson F. Walker Detroit, Mich.
Guy L. Kiefer Detroit, Mich.
40 John A. Kappelman, M. D. Springfield, Ill.
30 Lee K. Frankel, Ph. D. New York City.
19 S. J. Crumbine, M. D. Topeka, Kansas.
15 A. T. McCormack, M. D. Bowling Green, Ky.
14 Mayo Tolman, M. D. Charleston, W. Va.
13 B. L. Arms, M. D. Jacksonville, Fla.
11 Frank R. Gomila, M. D. New Orleans, La.
W. H. Robin, M. D. New Orleans, La.
10 John H. Hamilton, M. D. Iowa City, La.
10 Willard E. Ward, M. D. Brookline, Mass.
8 Henry Boswell, M. D. Sanatorium, Miss.
8 George T. Buckell, A. M. Houghton, Mich.
8 E. C. Levy, M. D. Richmond, Va.
7 Wm. Levin, Capt. Fort Riley, Kan.
7 Charles H. Hood Boston, Mass.
7 Wm. B. Wherry Cincinnati, Ohio.
6 W. Lewis Howe, M. D. Everett, Mass.
6 J. Penteado Bill, M. D. Boston, Mass.
6 Carl E. McCombs, M.D. New York City.
6 John B. Anderson, M.D. Seattle, Wash.
5 Prof. C. M. Hillard Boston, Mass.
5 George H. Jones, M. D. Jefferson City, Mo.
5 Enrique E. Ecker, Ph. D. Cleveland, Ohio.
4 Harold F. Gray, Gr. P. H. Chicago, Ill.
4 Alfred Katz Springfield, Mass.
4 Victor Safford, M. D. Boston, Mass.
4 Prof. W. T. Sedgwick Cambridge, Mass.
4 Prof. Burt R. Rickards Albany, New York.
4 E. H. Lewinski-Corwin, Ph. D. New York City.
4 Samuel G. Paul, M. D. Salt Lake City, Utah.
3 T. Eben Reeks New Britain, Conn.
3 L. D. Bristol, M. D. Augusta, Me.
3 F. L. Rector Brooklyn, New York.
3 J. H. Larson New York City.
3 Watson S. Rankin, M. D. Raleigh, N. C.
3 J. W. Ellms Lakewood, Ohio.
3 William H. Peters Cincinnati, Ohio.
3 Samuel R. Haythorn, M. D. Pittsburgh, Pa.
3 Oskar Klotz, M. D. Pittsburgh, Pa.
3 Gaius E. Harmon, M. D. Cleveland, Ohio.
3 R. A. Martin, M. D. Petersburg, Va.
3 Clarence D. Hart W. Somerville, Mass.
3 Merrill E. Champion, M. D. Boston, Mass
3 Nelson C. Davis, M. D. Boston, Mass.
3 Waller S. Leathers, M. D. University, Miss.
3 Prof. T. J. Murray Pullman, Wash.
3 Carl F. Raver, M. D. Charleston, W. Va.
3 E. H. Magoon, M. S. Muscle Shoals, Ala.
2 J. Severy Hibben, M. D. Pasadena, Cal.
2 R. H. Mullin, M. D. Vancouver, B. C.
2 Wm. F. Roberts, M. D. St. John, N. B.
2 Albert J. Slack London, Ont.
2 Wilfred H. Kellogg, M. D. Sacramento, Cal.
2 Peter H. Bryce, M. D. Ottawa, Ont.
2 Barnett Cohen New Haven, Conn.
2 D. Greenberg New Haven, Conn.
2 Rupert Blue, M. D. Washington, D. C.
2 William C. Fowler, M. D. Washington, D. C.
2 Gertrude Seymour Washington, D. C.
2 Ray C. Werner Atlanta, Ga.
2 William A. Evans, M. D. Chicago, Ill.
2 Effie L. Lobdell, M. D. Chicago, Ill.
2 J. J. Entz, M. D. Hillsboro, Kan.
2 Lawrason Brown, M. D. Saranac Lake, N. Y.
2 Eleanor Bridgeland New York City.
2 Eugene Lyman Fisk, M. D. New York City.
2 George H. Van Buren New York City.
2 Emery R. Hayhurst, M. D. Columbus, Ohio.
2 Joseph T. Martin Oklahoma City, Okla.
2 Ruth West, M. S. Glenolden, Pa.
2 E. L. Flanagan, M. D. Fairfax, Va.
2 J. S. MacNutt Camp Lee, Va.
2 P. S. Schenck, M. D. Norfolk, Va.
2 H. D. Worth, M. D. Bangor, Me.
2 Abel Wolman Baltimore, Md.
2 P. Challis Bartlett, M. D. Newton Hlds., Mass.
2 Gordon M. Fair Cambridge, Mass.
2 Almon L. Fales Newton Center, Mass.
2 Lyman A. Jones, M. D. Swampscott, Mass.
2 John Ritchie, Jr. Cambridge, Mass.
2 Calvin G. Page, M. D. Boston, Mass.
2 Horacio Rubio, M. D. Pachua Hgo, Mex.
2 William De Kleine, M. D. Flint, Mich.
2 John W. M. Bunker, M. D. Detroit, Mich.
2 Edward D. Rich Lansing, Mich.
2 Mazyck P. Ravenel, M. D. Columbus, Ohio.
2 John Tombs Albuquerque, N. Mex.
2 S. L. Jepson, A. M., Sc. D., M. D. Charleston, W. Va.
2 M. B. Williams, M. D. Wheeling, W. Va.

INCREASE IN A. P. H. A. MEMBERSHIP.





Health officers will need no explanations to accompany these charts. The one shows how states in similar geographical situations present much the same density of A. P. H. A. population. The chart of increase follows similar lines, the states with the least numerical increase being in general those with the smallest number of members in the beginning. The percentages of increase, which are not here tabulated, tell of efforts made by states with small membership which betoken great interest. The three groups with the larger percentages are here given.

100% Increase or More		75%–99%	50%–74%
Mississippi 185%	Utah 125%	Maine 91%	Washington 70%
West Virginia 160%	Indiana 105%	Louisiana 84%	Virginia 58%
New Brunswick 150%	Oregon 100%	Massachusetts 75%	
Kentucky 135%			

LIST OF NEW MEMBERS

PROPOSED FOR ELECTION TO THE

A. P. H. A.

FROM JUNE 13 TO JUNE 25, 1919.

Sponsors —and—	The New Members Whom They Introduced
(States arranged in alphabetical order)	
M. M. SEYMOUR, M. D., Regina, Saskatchewan	FREDERICK CHARLES MIDDLETON, M. B., Saskatchewan, Can. Provincial Medical Inspector
D. GREENBERG, New Haven, Conn.	MYRA BULL, R. N., Terryville, Conn. Public Health Nurse

Connecticut Meeting

T. EBEN REEKS, New Britain, Conn. LEE K. FRANKEL, Ph. D., New York City	CHARLES N. DENISON, M. D., Cheshire, Conn. Health Officer
	J. H. BUFFUM, M. D., Wallingford, Conn.
	ZELLY A. BONOFF, M. D., New Haven, Conn. School Medical Inspector
	KATHERINE J. KELLEY, R. N., Torrington, Conn. Visiting Nurse
	W. R. MUNSON, M. D., Tariffville, Conn. Health Officer
	HARRIET A. PARKER, R. N., Torrington, Conn. Supervisor, Brooker Memorial
	EDWIN C. M. HALL, M. D., New Haven, Conn. Health Officer, East Haven
	JOHN A. MOORE, M. D., Westport, Conn. Health Officer, Weston, Conn.
	LEROY C. BEECHER, Westville, Conn. Dairyman and Health Officer
	CHARLES H. CONINE, Seymour, Conn. Assistant Postmaster
	CHARLES W. EVARTS, New Haven, Conn. County Health Officer
	CHARLES D. ROBERTS, Beacon Falls, Conn. Health Officer
	FRANK B. STANDISH, M. D., New Haven, Conn.
	EMANUEL S. BRODSKY, M. D., Westport, Conn. Town Health Officer
	E. S. FAIRCHILD, Bridgeport, Conn. Health Officer, Trumbull, Conn.
	RALPH W. NICHOLS, M. D., North Haven, Conn. Health Officer
	WM. HOWARD WAKELEE, Southbury, Conn. Health Officer
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CONVENTIONS, CONFERENCES, MEETINGS.

The JOURNAL will be glad to publish the dates of prospective conventions or meetings of associations whose purposes are allied to those of the American Public Health Association.

American Public Health Association, New Orleans, La., October 27-30, 1919. Take notice of the change of date.

August 10, Jacksonville, Fla., Florida Public Health Association.

August —, Texas Public Health Association.

September —, Iowa Public Health Association.

September 8–12, Cincinnati, O., American Dietetic Association.

September 8–12, Cincinnati, O., American Hospital Association.

September 11–13, Seattle, Wash., Health Officers' meeting.

September 17–18, Quebec Public Health Association.

Week of September 22, Los Angeles, Cal., Southwestern Tuberculosis Conference.

September 29, Cleveland, O., National Safety Council.

Week of September 29, New Orleans, La., Southern Tuberculosis Conference.

October —, Des Moines, Iowa, Mississippi Valley Conference on Tuberculosis.

October —, Richmond, Va., Health Officers' meeting.

October —, Jackson, Miss., Health Officers' meeting.

October —, California Public Health Association.

October 7–9, Springfield, Ill., Illinois Public Health Association.

November 12–14, New Orleans, La., American Society for Municipal Improvements.

November 30, Minnesota Public Health Association.

January, 1920, Concord, N. H., Health Officers' meeting.

BOOKS AND REPORTS REVIEWED

Vital Statistics. *George Chandler Whipple. First edition. New York: John Wiley & Sons, Inc. Pp. 517. Price, $4.00.*

Vital statistics is the bookkeeping of humanity, but there are few good bookkeepers. There are still fewer expert accountants who understand the mathematics and mechanics of statistics. The ability to use vital statistics in public health work is an important part of the training of the modern health officer. Professor Whipple has done a real service by writing a clear, concise book on Vital Statistics as an introduction to the science of demography. Broadly speaking, demography is the statistical study of human life. Students of every branch of hygiene and sanitation owe a debt to Professor Whipple for the plain, accurate and lucid treatment of the subject. Even those who have a dislike for arithmetic will find the subject made easy and convincing.

The book makes no claim to be an exhaustive treatise or a compendium of facts; it is merely a guide to the study of vital statistics, an introduction to the great world-wide science of demography—a science yet in the magmatic stage, not yet crystallized. The Great War is bound to develop this science, because hereafter all the nations of the earth must know each other better, and this knowledge, in order to be usable, must be condensed into statistical forms.

Specifically the book tells what statistics are and what they are not; it shows how to express vital facts by figures, how to tabulate them and how to display them by diagrams; it shows how to compute birth-rates and death-rates and how to analyze a death-rate; it shows how to adjust and standardize death-rates and how to make life tables; it emphasizes the need of using vital statistics with truth, with imagination and with power. For the convenience of school instruction, exercises and questions to incite further study are given in each chapter.

The chapters deal with: Statistical arithmetic; statistical graphics; enumeration and registration; population; general death-rates, birth-rates, marriage-rates; specific death-rates; causes of death; analysis of death-rates; statistics of particular diseases; studies of deaths by age periods; probability; correlation; life tables; a commencement chapter.

The method of preparing graphs will be found particularly useful for those who have the difficult task of interpreting vital statistics to lay and professional audiences. This section should be carefully studied by the makers of health reports and also by public health educators.

The publishers deserve a special word of commendation for the sensible example of the bookmaker's art, for it is evident that they have given careful thought to the way in which they have made Professor Whipple's book on "Vital Statistics." The convenient size, the flexible cover, as well as the print and paper deserve favorable commendation. The volume is well illustrated and has a good index.

The book is dedicated to "The Students of Vital Statistics in the School of Public Health of Harvard University and the Massachusetts Institute of Technology."

"Vital Statistics" is timely and will be useful to students and practitioners of all phases of the art of sanitation and the science of hygiene. It is indispensable for health officers and will be found useful for sanitary engineers, nurses, social service workers, and medical students.

M. J. Rosenau, M. D.

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Human Infection Carriers. *Their Significance, Recognition, and Management. Charles E. Simon, B. A., M. D., Professor of Clinical Pathology in the University of Maryland School of Medicine and the College of Physicians and Surgeons, Baltimore, Maryland. Philadelphia and New York: Lea & Febiger, 1919. Pp. 245. Price, $2.25.*

The importance of human carriers in the dissemination of communicable diseases is now well recognized and an up-to-date, accurate, and comprehensive book dealing with this subject should be a valuable addition in the field of preventive medicine.

Dr. Simon takes up Asiatic cholera, diphtheria, plague, typhoid and paratyphoid fevers, epidemic cerebrospinal meningitis, bacillary dysentery, acute poliomyelitis, pneumococcus pneumonia, streptococcus infections, and influenza (Pfeiffer type). Although he states that only diseases of bacterial origin and those due to a filtrable virus are considered, a book of this nature could well devote space to malaria, hookworm, the venereal diseases, typhus fever, and possibly tuberculosis, in all of which the rôle of carriers is important, far more so, in fact,

than in plague, which the author is not sure can be spread by carriers.

The discussion of each disease includes the occurrence of active and passive carriers, the duration of the carrier state, the numerical relation between patients and carriers, the habitat and virulence of the organism, the mode of infection, examples of the danger of the carrier to others, recognition of the carrier, with detailed description of laboratory methods, and the management of the carrier from the public health standpoint. This range of discussion is thorough, but some of the facts given are indefinite and some of the statements may be open to question. For instance, it is stated that sheep serum medium is most practical when large numbers of persons are to be examined as meningitis carriers. Other authorities claim that this method is good only for isolated cases and that human glucose agar, laked or unlaked, is best for large numbers. The West tube, praised by the author, was found cumbersome and unnecessary by army laboratory workers.

The bibliography is extensive, though some of the more recent studies have not been included. An appendix gives state and municipal laws relating to carriers. It is not complete, only thirty-three states and eighteen municipalities being cited. The examples given serve to show the utter insufficiency of legislation covering this important matter, but with the passing of new ordinances, this part of the book is likely to be soon out of date.

On the whole, Dr. Simon's book may be said to fill a needed place in medical literature, and is one that should prove useful to the student, health officer and practitioner. The subject matter is in need of some correction and revision, however, and later editions will no doubt be brought strictly up to date. *James A. Tobey.*

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How To Live. *Irving Fisher and Eugene Lyman Fisk. New York: Funk & Wagnalls Company. Pp. 497. Illustrated. Price, $1.50, net; by mail, $1.62.*

The first edition of this book was published in 1915. It has met with great success and has passed through no less than fourteen printings before the present revision. The membership of the Hygiene Reference Board confers a weight of authority upon the recommendations that has probably never pertained to any other work of the kind. "How to Live" may be described as a small book with a voluminous appendix. In five chapters requiring less than half the total number of pages there is given a treatise on hygiene, simple, readable, and well proportioned. In the remaining ten sections the same subjects are taken up again in a more rigorously scientific manner with a bibliography. In this ingenious and unusual way the wants of two classes of readers are met.

The use made of statistics from insurance companies and other sources was one of the strong features of the first edition and it is now amplified. Very interesting suggestions originating in military life are found from time to time. Data of the war have particularly influenced the treatment of the "Hygiene of the Brain and the Nervous System," a subject which might well have been given more space. *P. G. Stiles, Ph. D.*

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Keep Well Series. *Washington: U. S. Public Health Service.*

This is the general title of a current series of booklets, which give information in the simplest of terms, with reference to the common diseases. Thus far four have been published, "The Road to Health," "Adenoids, What they are, How to Recognize them, What to do for them," "How to Avoid Tuberculosis," and "Diphtheria."

"The Road to Health," begins with the plain statement, "There is nothing mysterious about the prevention of sickness," and follows this with the list of the places most active in spreading infection. It sets forth clean homes, clean food, clean hands, clean teeth, clean milk, pure water, fresh air, sanitary privies, war on flies, and mosquito prevention as the simple items wherein care exercised will be returned many fold in good health. Each topic is the subject for a short, helpful discussion. Other means of caring for health are next taken up, for example, medical examination, correction of defective vision, care of the teeth, need of shoes that are fit to use, etc. Other bodily conditions, like overweight, kidney difficulties, lung troubles, etc., are spoken of sensibly and with accompanying good advice. A table of weights is a feature of the brochure, and a few rules of hygiene are appended. The booklet on diphtheria tells how to recognize the disease, how to keep from catching it, and what to do if one of the family is unfortunate enough to become infected. The treatise on tuberculosis is the introduction to more important publications by the United States Public Health Service of which a short list is given.

For distribution by the Red Cross the United States Public Health Service has prepared and issued a number of timely booklets on babies. "Motherhood," "Breast Feeding," and "Bottle Feeding," are the titles of the first three of the series. These are filled with simple statements which mothers and members of the family should know and which ought to be valuable in the baby betterment work in which this country is so much interested. *J. R.*

PUBLIC HEALTH NOTES

Abstracts by D. GREENBERG, M. P. HOROWITZ and MAYO TOLMAN.

New England Child Welfare Congress.—At this conference, which was in order in Boston on May 15–16, an unusual program was presented in which half-a-dozen overseas authorities took part. Miss Julia C. Lathrop reported on "Children's Year." Sir Cyril Jackson paid a pleasing tribute to America's advanced labor laws and told at some length of the long struggle to protect young children in England from commercial exploitation. Dr. Réné Sand, professor of the University of Brussels and advisor on medical inspection of the Belgium Ministry of Labor told of the work in his country. The war has had the effect of keeping the babies well and diminishing infant mortality. There has been a great increase in the number of infant clinics and dispensaries. The success with the older children, however, has not been so great. The average school boy has lost three pounds and the school girl, seven pounds. The Belgian child is today a year behind the children in other countries because of the war.

Sir Author Newsholme stated that there had been in England a steady decline in infant mortality since 1900 corresponding to the increase in welfare work for mothers and children. The stringency of the anti-alcoholic laws was increased during the war, and all the family earnings came into the home, making many families better nourished during the war than before it. The result was that the last year of the war showed a lower infant mortality than the first. The speaker advocated free health clinics for every one. He spoke of the social service work, as originated by the Massachusetts General Hospital, as being the kind of preventive nursing that has produced very beneficial results in England.

Dr. W. C. Woodward urged closer coöperation in health work so that Federal, state, and city health bureaus can coördinate their work, and with these there should be linked up the private agencies. Statistics show that as a nation we have done very little in reducing the infant mortality. In spite of increasing knowledge and other precautions the number of mothers who die at childbirth has increased in the past three years over the figures of a decade ago.

Mr. Takayuki Namaye of the Interior Department, Tokyo, stated that Japan is bending its efforts towards educating criminals rather than sending them to jail.

Mrs. Eleanor Barton described the work of the Women's Coöperative Guild, England, which has obtained for women in her country a minimum wage, and has succeeded in raising the standard of living in many families. She pleaded for a social system in the world under which every child shall have every right opportunity to develop. There were many other speakers. (*M. B. D.*)

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Standards for American Children.—A series of conferences in the larger American cities has been considering recently the standards for the health, education and work of the American child, the moving spirit being the Children's Bureau, United States Department of Labor. These standards are, briefly, that 16 is the youngest that any child should go to work, save in vacation time, when for farming or domestic work children between 14 and 16 may be employed.

Children between 7 and 18 should have nine months of school, either full or part time, each year. A child must have finished the eighth grade in school as well as reached his sixteenth birthday before he may be employed.

The working day of minors should never be longer than 8 hours. For children between 16 and 18 the working day should be shorter than that for adults. Minors should be paid at a rate which, for full time employment, would yield at least the "necessary cost of proper living." They should not be employed at night or in hazardous occupations.

In order to protect mothers and babies, the standards declare that prenatal care, trained attendance at childbirth, and adequate nursing and domestic assistance should be made available for every mother. The necessity of prompt and complete birth registration was pointed out. More health centers should be established, and a public health nurse secured for every two thousand of the population.

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Sanitary Corps Engineers Association.—Just before the School of Sanitary Engineering at Fort Greenleaf was closed it was decided, by the student officers then in attendance, to form an organization that would perpetuate their friendships. An association has, therefore, been formed, with the name, Association of Officers and ex-Officers, Engineering Section, Sanitary Corps, U. S. A., which is to include all the former members of the school and all other officers in the Engineering Section, S. C. The executive officer is Major Edward D. Rich, Lansing, Mich.; the treasurer is Lieut. Clifford C. Young, and the executive committee includes, Capt. Edward Wright and Second Lieutenants Aaron P. Pratt and Samuel R. Parke.







Many of us think of physical education as school athletics or military training, or some means of developing the muscular system. It does not mean this, but something of far greater value — it means proper training, which will develop the body to a state of highest efficiency.









The Louisiana State Board of Health in its *Monthly Bulletin* has printed a goodly number of cartoons that bear health lessons, presented in attractive and impressive form. One of these, with a pretty little picture of the birds going to roost, sets forth the verse,—

"When evening comes, the chickies run
To bed, to try to beat the sun;
And yet I know some children who
At bed-time raise a loud boo-hoo!"

Another one, which carries the lesson of the value to health of physical exercise, is given above with its spirited little illustrations, which come to the JOURNAL through the courtesy of the Board.

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The Survey in its broad platform for social reconstruction, which includes a dozen important topics, presents a plan for the betterment of public health. It suggests in the first place that there is needed the elevation of the United States Public Health Service to the rank of a department with a seat in the Cabinet, and the assembling in this department and under the secretary of health of the many health functions now widely scattered. Until this can be done, however, *The Survey* calls for some extensions of the activities of the United States Public Health Service. Three lines are suggested for such extensions, the creation of a special Division of Tuberculosis, the expansion of work in rural sanitation, and the vigorous prosecution of the campaign against venereal diseases. These "are the three measures," to use the words of *The Survey*, "for which the Public Health Service is asking special appropriations, and they are precisely the three measures which all social agencies throughout the country are naturally ready to support with every influence at their command." (*J. R.*)

The Nation's Physical Unfitness.—No undertaking on the part of the Federal government could have brought out so well the information relative to the physical condition of the young adult male population, as the recent national emergency. In the Second Report of the Provost Marshal General, it is stated that 3,208,446 men were physically examined under the Selective Service Act. Of these, 521,608, or 16.25 per cent, were found to be entirely unfit for military service. Only 2,259,027, or 70.41 per cent, were found to be fit for any branch of the military service. In addition there were 2.76 per cent who were found to possess curable physical defects and 10.48 per cent who, though physically substandard, could be used for limited service. Of 2,749,608 white registrants examined, 1,916,750, or 69.71 per cent, were found to be fully qualified. Of 458,838 colored registrants, 342,277, or 74.60 per cent, were found to be fully qualified. It was also brought out that the men from the rural districts were more physically fit than the men from urban districts. Thus 21.68 per cent of the men from the urban districts were rejected, against 16.89 per cent from the rural districts. Another interesting point brought out in the analysis is that the rejections in states where health work was highly organized and administered were greater than in those states where the conditions were the reverse. Thus, in Massachusetts and New York the rejections were 18.64 per cent and 19.31 per cent respectively; whereas, in Arkansas and Oklahoma the rejections were 13.8 per cent and 9.78 per cent respectively. The following table gives the causes of the rejections for the entire country:

	Number	*Per Cent.*
Total rejections for all causes	467,694	100.00
Alcohol and drugs	2,007	.43
Bones and joints	54,744	12.35
Development defects (height, weight, chest measurements, muscles)	39,166	8.37
Digestive system	2,746	.53
Ears	20,465	4.38
Eyes	49,801	10.65
Flatfoot (pathological)	18,087	3.87
Genito-urinary (venereal)	6,235	1.33
Genito-urinary (non-venereal)	6,309	1.35
Heart and blood vessels	61,142	13.07
Hernia	28,268	6.04
Mental deficiency	24,514	5.24
Nervous and mental disorders	23,728	5.07
Respiratory (tuberculosis)	40,533	8.67
Respiratory (non-tuberculosis)	7,823	1.67
Skin	12,519	2.68
Teeth	14,793	3.16
Thyroid	8,215	1.76
Tuberculosis of parts other than respiratory	4,136	.88
All other defects	14,314	3.06
Cause not given	25,419	5.44

—Editorial, *New York Medical Journal*, April 12, 1919. (*M. P. H.*)

Types of Pneumococcus in Rural Districts.—In a series of cases covering four years at the Pennsylvania Hospital at Philadelphia many of the Type IV cases presented a history of some exposure, which the patients considered to be the cause of their pneumonia. On the other hand the cases caused by the typical types presented more frequently the history of contact of some sort which would have given opportunity for infection with the pneumococcus. The Type IV cases seemed to be largely due to a diminished resistance, while the typical ones seemed to present a true contact infection.

A study of the types of pneumococci found in cases of pneumonia occurring in the country was made. In country cases there is lacking the personal contact with large numbers of people which is so distinctive a feature of life in a city. The results obtained are shown in the following table.

Type	*Country Cases*		*Per cent of Pennsylvania Hospital Cases*
	Number	*Per cent*	
I	7	15.2	28.6
II	5	10.8	21.2
III	2	4.3	8.3
IV	32	69.6	41.8

—R. Richardson, *Jour. A. M. A.*, Mar. 22, 1919, 863. (*D. G.*)

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A Normal Shoe for a Normal Foot.—Can the shoemaker build a shoe that will keep normal a normal foot? And having built it, will the public be brought to see the beauty of the product? Not so many years ago we gave our admiration to the small, tightly laced waist. Today we laugh at it and tomorrow we shall be equally amused by the pencil-point toes and high heels that tilt the human foot to the angle of a horse's hoof. The war made low heels beautiful on Fifth Avenue, and consequently on Main Street; if it had lasted a little longer, women would, of necessity, have gone the whole way with the shoe problem. The shoes of the future will not be "prescription" shoes, they will not cater to deformities, but they will be built to conform to the normal lines of the foot.

The National Board of the Young Women's Christian Associations, through the health division of the Bureau of Social Education, has started a drive to get this shoe for American women and to popularize it. The associations have all the health arguments. They have a national membership of 400,000 women to listen to them, but they cannot get this shoe without the coöperation of the manufacturers and dealers who make the shoes and determine the styles. To bring about this coöperation, a conference with leading shoe men was held recently

at the National Board Y. W. C. A. headquarters in New York.

The manufacturers have a difficult problem, but not an impossible one. They must produce a low shoe, with a low heel and a flexible shank that will allow enough exercise of the muscles of the arch to keep them strong, a shoe with enough room for the toes and a straight inner border because the foot is naturally straight on the inner side. They must make the shoe attractive to the discriminating taste by using their knowledge of leathers to procure variety and fineness of finish for both day and evening wear. Will the shoemaker do it? When he does, the National Board of the Young Women's Christian Association will be back of him. Every woman who wants to wear the "normal line" shoe must be able to get it. All samples of shoes will be examined, an alphabetical list made, according to states and cities, of all firms that carry these shoes.

This list will then be sent to local associations all over the United States, so that no one can say, "We would like to get these shoes, but we do not know where to find them."

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Dispensaries and Public Service.—The dispensary was a marked step in advance in the cure of disease and the alleviation of suffering, because it brought expert medical aid to those who did not know where to get it, and who were unable to pay for it. It is important, however, for the dispensary to determine which patients really need the medical attention that they seek. Having determined this, it is then important to give the required medical attention efficiently and completely. In order to encourage many institutions to start dispensary service, and in that way increase the opportunities for aiding the sick, is is urged that pay clinics be established. In that way at least, the running expenses of the dispensary could be realized.

With the entry of the United States into the war, great impetus was given to the venereal disease campaign. Approximately 500 institutions were asked whether they had venereal disease clinics. Of these 300 replied. It was found that 150, or 50 per cent, had venereal disease clinics, and that 75 of these, or 25 per cent of the total number, had been established as a result of the venereal disease campaign which originated only recently.—Michael M. Davis, Jr., *Modern Hospital*, April, 1919.

(*M. P. H.*)

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Making Malaria Control Effective.—The United States Public Health Service, in an attempt to combat malaria in Lonoke, Ark., found the principal methods of control to be (1) sterilization of carriers to prevent infection of mosquitoes, (2) screening to prevent access of mosquitoes to men, and (3) limitation of the production of mosquitoes, as far as was found practical. For the sterilization of carriers (of whom there were ninety) quinine in capsules (ten grains) was given daily. Each carrier treated was followed for thirty days to make certain that the treatment was actually carried out. After this time they were given quinine sufficient for a like period of time with instructions to use as in the first period.

Among the general measures for the limitation of production of mosquitoess were included surface drainage, the clearing and channeling of existing waterways, the clearing of old ditches, spraying with oil, etc.

As to the proof of the efficiency of these methods of control, it was noted that whereas in 1917 (year before control measures were put in operation) there were four deaths and 522 cases, in 1918 there was only one case.

In spite of the attempt to control the production of the *Anopheles* mosquitoes these were present in large numbers, and the diminution of malaria is ascribed by the authors only to screening and the sterilization of the human carriers, the latter being probably the main factor.

Experiments were also made on the distance of flight of the *Anopheles quadrimaculatus*, and while 90 per cent of the mosquitoes were recovered at a distance of three fourths of a mile, 10 per cent were found at a distance of one mile from the point of liberation.—J. G. Geiger, W. C. Purdy and R. E. Tarbett. *Jour. A. M. A.*, Mar. 22, 1919, 844.

(*D. G.*)

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Atmospheric Sanitation.—As yet, sanitarians have given very little attention comparatively to the sanitation of the atmosphere. It is true that in some cases, smoke nuisances, or nuisances resulting from obnoxious gases and odors have required the attention of sanitarians. But all atmospheric pollution is not due to smoke. There are the gases resulting from industrial processes, the gases from partially consumed gasoline, street dust, building dust, rubbish heaps, etc. The problem of smoke abatement is both an engineering and an educational problem. The problem resulting from street dust, building dust, rubbish heaps, etc., is essentially one dealing with municipal housekeeping. Smoke as a rule is responsible for about two thirds of the pollution of the air. In thickly populated communities, it is estimated that the solid matter deposited from smoke represents 600 tons per square mile per annum. In cities of moderate size, the deposit is from 300 to 400 tons per square mile per annum.—C. S. Sole, *American City*, March, 1919.

(*M. P. H.*)

Reorganization of New Jersey Health Department Advocated.—In an address before the New Jersey Sanitary Association, M. N. Baker, associate editor of the *Engineering News-Record*, maintained that the New Jersey State Board of Health be abolished entirely or simply restricted to advisory duties. All the executive and administrative functions of the health department should be centered in a single commissioner as is the case in New York, Massachusetts, Pennsylvania, Maine, Connecticut, Ohio, West Virginia and Oklahoma. This reorganization is necessary in order to make the health department a vital machine, unhampered by politics. In the light of the recent scourge of influenza, the deaths resulting from the war, and the period of reconstruction into which the world has entered, it would seem particularly appropriate to make the change at the present time.—*National Municipal Review*, March, 1919. (*M. P. H.*)

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Prophylactic Use of Mixed Influenza Vaccine.—The value of the mixed vaccine against influenza is brought out in the comparative table below.

It is to be noted that the inoculations of the 1,080 civilians were completed October 16, twenty-one days after the epidemic began in San Francisco, and the incidence and mortality figures for the city represent the period of time, beginning with the inoculation and running until December 1, when the epidemic subsided. The 1,950 marines were inoculated about October 20 and mixed freely with the population of San Francisco. The 3,100 men from the Naval Camp at San Pedro were inoculated about November 15, at which time the epidemic was in its recrudescence in Los Angeles, and the figures given in the table represent only the cases reported in Los Angeles during the period of twenty-four days following the inoculation of the men.—A. J. Minaker and R. S. Irvine, *Jour. A. M. A.*, Mar. 22, 1919, 847. (*D. G.*)

	Population	Influenza		Mortality	
		No. of cases	Per cent	No.	Per cent
Uninoculated Persons					
San Francisco and Oakland	625,000	33,065	5.3	3,035	9.2
Mare Island Navy Yard	8,232	1,296	15.7	65	5.0
Nurses and attendants, San Francisco Hospitals	530	186	33.8	4	2.1
Los Angeles	600,000	9,124	1.5	612	6.6
Inoculated Persons					
San Francisco Civilians	1,080	14	1.4	0	0
Marines at Mare Island	1,950	35	1.8	1	2.8
Hospital corps men on duty in influenza wards	270	9	3.5	1	11.0
Naval Camp, San Pedro	3,100	53	1.7	0	0

Contagious Phase of Whooping-Cough.—Lereboullet (*Paris Medical*, IX, *2*, p. 44) has demonstrated that whooping-cough is contagious from the very first, but that this contagious phase does not last very long. He advises that children who have been exposed should be isolated as soon as they begin to cough at all, not waiting for the characteristic spasmodic cough. The author declares that there is no reason for keeping the child or adult isolated after four weeks, although the paroxysmal cough may still be severe. Five weeks is the extreme limit, and a change of air may safely be recommended then without dread of contagion. The alleged return cases from old whooping-cough cases can always be traced to the intermediation of healthy carriers or of persons having the disease in such an abortive form that it escapes recognition.—*Medical Officer*, April 12, 1919, 121. (*D. G.*)

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The Red Cross and Preventive Medicine in the Future.—The world-wide organization of Red Cross societies during the war, and the recognition of the splendid work which was done to relieve pain and suffering, have prompted certain far-sighted men to attempt to utilize these same forces during times of peace. An international Red Cross has, therefore, been established, and it is planned to attack disease on a large scale. It is not the purpose of the Red Cross societies to interfere with existing agencies for relief and health protection, but rather to coöperate with them. Where health work is not organized the plan is to start such work and to clearly demonstrate its value. After that, the work will be turned over to local authorities. Particular emphasis will be placed on preventive medicine, child welfare, tuberculosis, malaria, venereal diseases, nursing, information, and statistics. Health information from all over the world will be collected and disseminated again, by the international bureau through special publications or periodicals.—Sir Arthur Newsholme, K. C. B., *Public Health Reports*, May 16, 1919. (*M. P. H.*)

Ultimate Results of Treatment of Tuberculosis.—Concerning the ultimate results of the treatment of tuberculosis, it is found that the prognosis will vary with the presence or absence of tubercle bacilli in the sputum. Practically proved cases of tuberculosis with an absence of bacilli in sputum, even though the lung findings are sometimes much more extensive than those in which the bacillus is present, usually give a much better prognosis. Thus of 425 cases discharged from the Modern Woodmen of America Sanatorium from four to nine years ago, in whom bacilli in sputum could not be demonstrated (this group comprising 89 incipient; 96 moderately advanced; 24 far advanced), 86.4 per cent are living. Of 1,229 cases with bacilli in the sputum (comprising 84 incipient, 495 moderately advanced, 650 far advanced) 33.6 per cent are living.—J. A. Ruttledge and J. B. Crouch, *Amer. Rev. of Tuberculosis*, Feb., 1919, 755. (*D. G.*)

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Parental Nativity and Infant Mortality.—Analysis of the infant mortality statistics of New York State brings out the interesting fact that these deaths are strongly influenced by the customs and racial characteristics of the various peoples inhabiting the state. Among the foreign born, and particularly the Italian and Slavic races, the principal causes of death are the communicable, respiratory and gastro-intestinal diseases. On the other hand the mortality from these diseases among the native element is comparatively low. But it is to be noted that among children of Italian, Russian, Polish and Austro-Hungarian parents there are much fewer deaths from prematurity and congenital defects than among children of native mothers. The high mortality in the latter group from these may be due to a more general knowledge of contraceptive devices and of artificial methods for the prevention of childbirth, together with the more common occurrence of venereal disease and chronic alcoholism. The obvious inference to be drawn from this study, which should be the basis for campaigns for the conservation of child life, is that in a community where the population is preponderantly native the proper course to be adopted should be mainly one of education in regard to prenatal conditions. Where the population is found to be largely of foreign-born stock it will be necessary to direct activities for instruction in proper feeding and care of the infant, and for the improvement of sanitation.—P. R. Eastman, *Amer. Jour. of Dis. of Children*, March, 1919, 195. (*D. G.*)

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Malaria Control Demonstration.—The effectiveness and practicability of measures directed exclusively against the propagation of mosquitoes, as a means of controlling malaria in towns, was demonstrated during 1917 by operations carried on in Hamburg, Ark. The work was conducted by the International Health Board in coöperation with the U. S. Public Health Service. The methods employed consisted exclusively of drainage and oiling. Streams were regraded to insure a rapid flow-off of the normal waters; wide streams were concentrated into narrow ditches; obstructions were removed; ponds and excavations were drained when practicable, and if not were either filled in or sprayed with oil. The results were very striking. It was noted that mosquitoes of all varieties were fewer in number in the summer of 1917 than they had ever been before. A parasite index taken after the operations were completed (December) showed a reduction of 62 per cent in parasite endemicity over the index taken in May. The number of calls for malaria answered by physicians was reduced from 2,312 in 1916 to 259 in 1917—a difference of 88.8 per cent. The cost of these control measures was found to be $1.45 per capita.—H. A. Taylor, *South Med. Jour.*, Feb., 1919, 74. (*D. G.*)

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Bloomington Ballots for Full-Time Officer.—In Bloomington, Ill., the question of the full-time health officer was made the subject of popular vote. The illustration shows how the committee of women stood in the matter, and presents the circular which they circulated liberally before the election. It is hardly necessary to say that the "*Yes*" ballots predominated by a large majority in every city precinct.

HEALTH PETITION COMMITTEE

THINK HEALTH—TALK HEALTH—VOTE HEALTH

"Shall the City of Bloomington employ a competent, trained, full-time health officer?" **VOTE YES**

Think of It.

Is it not time that a system be adopted that has proven a success in other cities? The health officer investigates the causes of diseases and works for prevention.

One of every 1000 babies born in Illinois 111 die under one year of age.

The death rate for Bloomington is 15.8 for one year. Fourth highest in the state.

The State Department says, "That there can render no greater service to the people of the state than in urging the employment of a full-time health officer to take charge in every community."

A full-time health officer is a life insurance asset to a community.

The cost of a funeral is more than the care of a well child for many years.

Life is a priceless gift from God and once lost cannot be restored. Why not protect it with modern health methods.

Be of some service to humanity by casting your priceless vote to insure Bloomington's healthfulness, Tuesday, April 1st.

Ask every voter in your family to read this and mark the ballot thus:

"SHALL THE CITY OF BLOOMINGTON EMPLOY A COMPETENT, TRAINED, FULL TIME HEALTH OFFICER?"	YES	X
	NO	

Polls open 6 A.M.—Close 6 P.M.

VOTE EARLY.

MRS. GEORGE MONROE, MRS. CAMPBELL HOLTON, MISS NELLIE FARNAM, MRS. ELMER FOLSOM, MRS. N. D. MCKINNEY, MRS. J. D. CUNNINGHAM, MRS. R. W. EVANS, MISS MARGARET ROBINSON, MRS. GUY MCCURDY, *Chairman.*

Important Notice.

There will be a Separate Ballot for this question. DON'T FAIL TO VOTE.

Pease Laboratories.—Announcement is made of a change in the name and personnel of the Lederle Laboratories, New York City. Dr. Herbert D. Pease, formerly directing head of the Department of Bacteriology and Sanitation, has secured the controlling interest of the institution, and is now reorganizing under the new name, Pease Laboratories.

Dr. Herbert D. Pease will be the director of the Department of Sanitation and Preventive Medicine, Mr. Paul Poetschke, B. C., will be director of the Department of Industrial and Engineering Chemistry, and Mr. John H. Wright, M. S., will be director of the Department of Biological Chemistry and Bacteriology.

Dr. Pease was for many years connected with the Philadelphia Department of Health, later taking charge of the laboratories of the New York State Department of Health. Mr. Poetschke, formerly chief assistant with the Department of Chemistry under the Lederle régime, has for the past few years been the chemical and research director of a large dental manufacturing concern and has been associated with many other broad problems of industrial chemistry. Mr. Wright was for several years associated with Dr. Vaughan at Ann Arbor and Dr. Ladd in North Dakota, and is well known for his researches on disinfectants.

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Proposed Standards for Protecting the Health of School Children.—At the Children's Bureau Conference on Child Welfare Standards the following standards for protecting the health of school children were adopted tentatively. The schools should be properly located, constructed, and supplied with all the necessary sanitary facilities. There should be adequate room space and no overcrowding. Adequate playgrounds, recreational facilities, physical training and supervised recreation should be provided. There should be open air classes and rest periods for pre-tuberculous children. Special attention should be given to malnutrition, and physical and mental defects. There should be one full-time school nurse for every 1,000 children. The school medical unit should have adequate space, equipment and laboratory facilities. One full-time physician and two full-time nurses should be employed for every 4,000 children. Children should be examined thoroughly once every year, and a continuous health record of the child should be kept on file. There should be sufficient clinics for dental, nose, throat, eye, ear, skin and orthopedic defects. Vaccination against smallpox and typhoid should be free. Physically subnormal children should be cared for in special nutrition classes. Backward children should be examined by a psychiatrist.—*Survey*, May 17, 1919. (*M. P. H.*)

Typhoid Fever in Large Cities in U. S. in 1918.—In its April 15 number the *Journal of the American Medical Association* presents its seventh annual survey of typhoid fever mortality in cities of the United States having more than 100,000 population. Cities comprising Group I (more than 500,000 population) show a notable improvement in their typhoid record. Thus the death-rates per 100,000 population are: Chicago, 1.4; Boston, 2.5; Philadelphia, 3.0; New York, 3.7; Cleveland, 4.7; St. Louis, 7.2; Pittsburgh, 9.8; Detroit, 10.0; and Baltimore, 12.2. Detroit which for several years has had an excessive amount of typhoid for a northern city shows a marked reduction. Baltimore also shows improvement, especially since this city is handicapped by its negro population.

Most of the cities in Group II (from 300,000 to 500,000 population) show improvement over the 1917 rates, the changes in Seattle and Los Angeles being especially noticeable. These cities with their typhoid rate per 100,000 population are Seattle, 2.3; Los Angeles, 2.8; Newark, N. J., 3.5; Cincinnati, 4.1; San Francisco, 4.6; Milwaukee, 6.2; Minneapolis, 7.6; Buffalo, 7.8; Washington, 11.9; and New Orleans, 20.1.

Group III (from 200,000 to 300,000 population), which last year made an exceptionally good record, now shows an increase in the typhoid rate in 7 out of 10 cities. The cities and their typhoid rates are: Rochester, N. Y., 1.9; St. Paul, 3.5; Jersey City, 4.1; Providence, R. I., 4.5; Portland, Ore., 5.6; Indianapolis, 6.6; Denver, 8.7; Columbus, Ohio, 8.9; Louisville, Ky., 12.4; and Kansas City, Mo., 13.7.

The cities in Group IV (from 125,000 to 200,000 population) make on the whole a better showing than in 1917. The cities and their typhoid rates are: Paterson, N. J., 2.1; Worcester, Mass., 4.6; Oakland, 4.7; Omaha, 5.0; New Haven, 5.2; Scranton, 5.2; Fall River, 7.0; Richmond, 7.5; Spokane, 9.1; Syracuse, 9.3; Toledo, 9.9; Atlanta, 14.4; Memphis, 14.9; and Birmingham, 31.9.

The cities in Group V (from 100,000 to 125,000 population) also show improvement over 1917. The typhoid rates are: Lowell, 1.8; Cambridge, 2.7; Springfield, Mass., 3.6; Camden, N. J., 3.6; Bridgeport, 3.9; Tacoma, 5.7; Dayton, 6.9; Hartford, 7.0; Salt Lake City, 7.1; New Bedford, 8.0; Trenton, 9.4; Grand Rapids, 10.3; Albany, 10.7; Reading, Pa., 12.3; Dallas, 12.6; Nashville, 32.7; and San Antonio, 54.3.

In general in 1918, 40 cities had a lower typhoid rate than in 1917; 20 a higher. Forty-four cities had a typhoid rate under 10, as compared with 37 in 1917. In 22 cities the death-rate was under 5.0 during 1918.—*Jour. A. M. A.*, April 5, 1919.

(*D. G.*)

Virus of Poliomyelitis in Nasopharynx.—In the authors' experiments, infection was secured with tissues obtained during the first week, approximately, of the disease but not at the later periods. The deduction from the experiments reported is to the effect that the virus is regularly present in the nasopharynx in cases of poliomyelitis in the first days of illness, and especially in fatal cases; that it diminishes relatively quickly as the disease progresses, except in rare instances; and that it is unusual for a carrier state to be developed. Hence the period of greatest infectivity of patients would appear to be early in the disease, which is probably the time at which communication of the virus from person to person takes place. Available evidence proves that healthy carriers of the virus occur. The authors do not, however, possess data which indicate the frequency with which carriage arises. The fact that even after a severe and wide epidemic, such as occurred in the United States in 1916, the disease may virtually disappear within two or three years, points to the probability that enduring carriers of the active virus, whether healthy or chronic, are of exceptional occurrence.—S. Flexner, and H. L. Amoss, *Jour. Exp. Med.* XXIX, No. 4, 379; *Jour. A. M. A.* 72, 1104. (*D. G.*)

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Krug Park, Omaha, Neb., has installed a huge modern swimming pool and beach for pleasure seekers. The pool has more than an acre of surface with another acre included in the beach. More than a million gallons of water constitute the pool, which is expected to have a capacity of 4,000 persons at one time and will care for 15,000 to 20,000 persons during the day and evening. The water is taken from the public supply, it is kept in circulation, and is to be completely changed every twelve hours. Before entering, the supply is to be screened, coagulated, filtered and finally sterilized by means of ozone. The circulation is effected by means of pumps, and the water falling back again into the pool over cascades will add a picturesque feature to the pool.—*American City*, June, 1919. (*J. R.*)

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Home Service Institute at University of Oklahoma.—The Southwestern Division of the American Red Cross has arranged to hold a Home Service Institute at the University of Oklahoma from June 23 to August 5, 1919, for the purpose of training home service workers. A large program dealing with the problems of sanitation, communicable diseases, socio-sanitary work, and preventive medicine has been arranged. Among the lecturers on health topics will be Jules Schevitz of the Oklahoma Tuberculosis Association; Harry G. Snyder, expert in child welfare legislation; Margaret Byington, American Red Cross; Novella Gould, Oklahoma City Provident Association; A. R. Lewis, Commissioner of Health, State of Oklahoma; W. D. Mathews, Commissioner of Charities and Correction, State of Oklahoma; E. B. Orr, American Red Cross, and M. P. Horowitz, Massachusetts Institute of Technology. (*M. P. H.*)

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Mothercraft Work.—The mothercraft movement as represented by the Girls' Health League presents salient features as follows: The Girls' Health League movement launched two years ago by the Massachusetts State Federation of Women's Clubs has met with splendid success during the past 12 months. It is now actually a part of the public health work in 15 cities and towns in this state, while 12 more are planning the early introduction of league classes. Other states are constantly asking for information concerning the work.

Personal hygiene and mothercraft are the objects of the league, and these subjects are taught to girls between the ages of 10 and 16. In nearly all towns where classes have been formed, the local women's club has taken the initiative, although in some the school boards have seen the value of the league and have arranged to have it a part of the school work.

Among the first cities to make a success of the movement was Worcester, while Cambridge, Clinton, Danvers, Bedford, Everett, Milton, Milford, Millbury, Plymouth, Sharon, Rockport and Easthampton have classes and other cities are organizing.

The club women of Massachusetts with the Federation president, Mrs. Herbert J. Gurney, at their head, are really pioneers in this work in following out the plannings of the secretary, Miss May Bliss Dickinson of Boston. There is available a model outfit illustrating the work, and a motion picture film is under preparation to present the actual results of the study. There is a vacation development of interest which is introducing the mothercraft study into playgrounds over New England.

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Cause of Mosquito Asphyxiation.—The author finds that the breathing tube of the mosquito (pupal or larval stage) does not stain with ordinary water soluble dyes, but is intensely colored by Sudan III suspended in petroleum, from which he concludes that some fat-like substance is present in that part which combines with the petroleum to the injury of the body as a whole. Other oils which are relatively inert cause death less readily than petroleum. The author concludes that the action of the heavy mineral oils in mosquito extermination is not a mechanical process of obstructing the breathing pores of the immature stages, but is rather an acute intoxication.—Takatsuki, A., *China Medical Journal*, XXXIII, No. 2, p. 166. (*D. G.*)

STATE HEALTH NOTES—LEGISLATION.

Ottawa.—An act has been passed for the formation of a Federal Department of Health. The details of organization are at this monemt under consideration.

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Nova Scotia.—During the session of the Nova Scotia Parliament, which closed May 17, legislation was enacted providing for the partition of the province into three principal health divisions and for the appointment of a full-time medical health officer for each division. The act also provides for the establishment of a public health clinic in each county of the province and for a public health nurse for each county. In addition, provision was made for an inspector of health, who will also act as an epidemiologist. It is part of the plan to carry out—as far as practicable—a system of medical inspection of school children of the province, under the general direction of the divisional medical health officers.

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Colorado.—Before its adjournment two new pieces of legislation were effected by the legislature: First: The act for the establishment of a Division of Venereal Diseases to take the place of the Bureau of Venereal Diseases which had been in operation for a year simply as a war measure. For this work the legislature appropriated $8,500 annually, this amount to be met by an equal sum from the Public Health Service, by reason of the Chamberlain-Kahn act. The act establishing this work has made few changes in the method of handling these diseases excepting that while physicians were formerly required to report the name and address of patients, they are now permitted to report these cases by case number only during good behavior.

The second act was one which established a Detention Home for Women with an appropriation of $15,000 for the biennial period. This work will soon be in active operation.

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Delaware.—The following is an outline of the bills that were passed at the last session of the Delaware state legislature: 1, Laboratory appropriation increased from $3,500 to $10,000; 2, The State Board of Health to be notified of all physicians licensed to practice medicine in the state; 3, Provision made that the mayors may close the public schools or other public places when in their judgment public protection requires it and the local board of health has not acted; 4, The general State Board of Health appropriation is increased from $2,500 to $6,000, provided that in the event of an epidemic no limit is placed upon the expenditure if the governor expresses approval in writing; 5, A provision making prostitution illegal and also every act which may assist in promoting prostitution, such as renting buildings or conveyances; 6, General venereal disease law.

In addition to the sums above noted that are available for the use of the State Board of Health, there is a vital statistics appropriation of $2,000 and an antitoxin appropriation of $5,000, in addition to the $2,200 from the Chamberlain-Kahn fund.

By the act to provide for the control and suppression of venereal diseases, the General Assembly amends the existing health laws of the state to include these diseases. The venereal diseases, syphilis, gonorrhea and chancroid are declared to be contagious, infectious, communicable and dangerous to the public health. It shall be unlawful for any person infected with them to expose another person to infection. Physicians who treat such cases are required to make notification by number to the health authorities "so long as the patient shall obey the rules and regulations of the State Board of Health." State, county and municipal health officers shall have power to make examinations of suspected persons, all persons confined in any state, county or city prison shall be subject to examination, and such persons shall be treated, and may be isolated or placed in quarantine. The State Health Board is empowered to make rules and regulations, which shall have the force and effect of law, and "teeth" are supplied in the shape of fine or imprisonment, or both. An appropriation of $2,500 per year is furnished for the expenses of the act.

The regulations adopted by the State Board of Health of Delaware include a statement of the conditions under which the name may be omitted from the report of the physician, the report on the termination of the case, the recording by druggists of sales of curative drugs, change of physicians, diagnosis, treatment for the poor, rules for isolation and release, placarding, removal from one health jurisdiction to another, giving of false information and the restatement of the penalties.

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Kansas.—*United States Supreme Court Decision.*—April 14, 1919, the Supreme Court of the United States rendered a decision in the case of the Corn Products Refining Company, plaintiff in error, against the food officials of Kansas, to the effect that a state has the power under the Constitution to require a statement on the labels of the percentages of the ingredients of a food even if such labels reveal the formulas of the food.

The regulation of the Kansas Health Department reads:

"(1) In the case of syrups, the principal label

shall state, definitely, in conspicuous letters, the percentage of each ingredient, in the case of compounds, mixtures, imitations or blends. When the name of the syrup includes the name of one or more of the ingredients, the preponderating ingredient shall be named first."

The Court said:

"Evidently the purpose of the requirement is to secure freedom from adulteration and misbranding; the mischief of misbranding being that people may be misled with respect to the wholesomeness or food value of the compound. And it is too plain for argument that a manufacturer or vender has no constitutional right to sell goods without giving to the purchaser fair information of what it is that is being sold. The right of a manufacturer to maintain secrecy as to his compounds and processes must be held subject to the right of the state, in the exercise of its police powers and in promotion of fair dealing, to require that the nature of the products shall be fairly set forth."

Upon the question of repugnancy to the Commerce Clause the Court said:

"The judgment under controversy is clearly sustained by the decision of this court in *Savage* v. *Jones*, 225 U. S. 501, which is precisely in point. . . . The requirements, the enforcement of which the bill seeks to enjoin, are not in any way in conflict with the provision of the Federal act. They may be sustained without impairing in the slightest degree its operation and effect. There is no question here of conflicting standards or opposition of state or Federal authority. It follows that the complainants' bill in this aspect of the case was without equity."

An attempt is made to distinguish *Savage* v. *Jones* upon the ground that the Indiana statute there under consideration covered a field of regulation which had not been included in the Federal statute, whereas, it is said, the Kansas food and drugs law is almost literally a reproduction of the Federal law upon the same subject.

"It is true that the Kansas statute, *mutatis mutandis*, follows quite closely the lines of the act of Congress, and that its 8th section, which defines the term 'misbranded,' is almost a copy of the corresponding section of the Federal act; but in the following proviso at the close of the section the words italicized have been inserted by the state legislature, they not appearing in the Federal act; 'And provided further, that nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome ingredients, to disclose their trade formulas, except so far as the provisions of this act, *or the rules and regulations of the State Board of Health* may require to secure freedom from adulteration or misbranding'. These italicized words make a very substantial difference. Section 3 of the Kansas act provides that 'The State Board of Health is authorized and directed to make and publish uniform rules and regulations, not in conflict with the laws of this state, for carrying out the provisions of this act'; and under this authority Regulation 6 was adopted and published, which required manufacturers of certain proprietary foods, including syrups that are compounds, mixtures, or blends, to state definitely upon the principal label the percentage of each ingredient. It is insisted that the regulation goes beyond the authority conferred upon the state board because it is inconsistent with the definition of 'misbranding' contained in the Act, and therefore cannot be deemed to be a regulation required to secure freedom from misbranding. Upon this particular point the opinion of the Kansas supreme court is silent; but the decision of the district court upon the demurrer sustained the validity of the regulation as being within the authority of the board; the supreme court did not overrule this; the question is one of state law; and we must assume that the regulation, having been adopted by the board and in effect sustained by the decision of the supreme court, is within the authorization of the statute. This being so, it must be treated as an enactment proceeding from the legislative power of the state; and hence it stands upon precisely the same basis as the requirement of the Indiana statute (quoted in 225 U. S. 504 and referred to above). . . . It was because of the absence from the Federal act of a provision requiring the ingredients to be disclosed that this court held that Congress had limited the scope of its prohibitions and had not included that at which the Indiana statute aimed."

Maryland.—Hagerstown has had much discussion over an ordinance to establish a city health officer. A committee representing about forty public spirited, fraternal, civic and social bodies drafted the ordinance, but City Attorney Hagner held that the power to nominate the officer should be vested in the mayor, and the ordinance was lost. Dr. J. McPherson Scott, four times mayor, is reported to have said that the health conditions in Hagerstown are good, and he opposed the measure. Ex-City Attorney Armstrong argued in favor of the ordinance and was supported by citizens and by the president of the local Red Cross. The salary of the proposed officer was set at $3,000.

Minnesota.—The Legislature, after its Finance Committee had reported an appropriation bill

omitting all provision for venereal disease work, reconsidered its action and at the time the bill was passed an amendment was added which carried an appropriation of $30,000 a year. With the Federal allotment from the Chamberlain-Kahn funds, Minnesota will have more than $52,000 a year for this work during the coming biennial.

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New York.—Governor Smith of New York has vetoed the bill which was intended to abolish the Lake George Health District. This was established in 1918, and was a novelty in that it set up a district about the lake with one health administration, which was independent of the local districts of which there were formerly nine. When established there was praise of the spirit that could thus act independent of the former political districts. The administration was condemned by some as extravagant, but on the other hand the district was approved of by the State Board of Health and the Lake George Association.

In his note accompanying the veto Governor Smith brought to attention the soundness in principle of district organization, since the carelessness of any one of nine different bodies might permit the pollution of the lake and tend to the injury of the whole. "If there has been improper or expensive administration of the statute," wrote Governor Smith, "it does not lie in the law, but with the board of health and the health officer administering it. The health officer is appointed by the board of health and this in turn is chosen by the local supervisors and the village president, who have it in their power to entirely control the administration of this law."

✽

Ohio.—The Davis sanitary district bill, authorizing joint action by local political units in carrying out sanitary improvements, has passed both Houses. The first action on this law, it is expected, will be taken in the Youngstown district in the lower Mahoning valley.

The bill for reporting occupational diseases in accordance with the existing law has been passed by the House and is pending in the Senate. The measure for more rigid regulation of prostitution with provision for medical examination of persons convicted is still pending. The two school health bills introduced have remained in committee and it is not considered probable that any action will be taken on them.

The appropriation bill as introduced in the House carries appropriations of $197,980 per year for each of the next two years. Included in this total is a grant of $25,000 for venereal disease work in coöperation with the United States Public Health Service. Last year's appropriations totaled $128,005. The salary allowance of the pending bill is increased from $88,730 to $117,980 per year.

✽

Texas.—In the Supreme Court of this state an ordinance of the city of Braunfels has been sustained, which excludes children from school when they have not been vaccinated against smallpox. The court maintained that this comes within the charter power of the city, which may make all regulations necessary or expedient for the promotion of health or the suppression of disease.

✽

Wisconsin.—Governor E. L. Philipp on June 10 vetoed the Skogmo bill, which weathered a stormy passage through the state legislature. It would have legalized Christian Science treatment for injuries subject to compensation under the workmen's compensation act.

The county nurse bill, long pending in the Wisconsin legislature, requiring every county to employ a public health nurse or health instructor, finally passed both Houses and was signed by the governor on June 11.

The legislature also completed enactment of the important water and sewerage bill sponsored by the State Board of Health, which will bring under the control of that body all sewage treatment and disposal plants and water and ice supplies, as a measure for preventing pollution of water supplies.

The public comfort station bill also has become law. This requires every city and incorporated village in the state to provide public toilet facilities for each sex, in accordance with rules and regulations to be promulgated by the State Board of Health.

◈

STATE HEALTH NOTES—GENERAL

Ottawa, Canada.—During the last two days of May there was in session a meeting called by the Premier which included representatives of the various provinces to consider the question of a national council to combat venereal diseases. Nearly every state has now its act for compulsory notification and hospital treatment.

✽

Colorado.—Following the naming of new members of the State Board of Health a reorganization of the body was effected. Clinton G. Hickey, M. D., was named president, and Frank R. Coffman, M. D., vice-president. A permanent secretary was not named. Wilbur F. Cannon has been appointed director of the Division of Pure Foods and Drugs, and S. R. McKelvey, M. D., director of the Division of Venereal Diseases. Hugh F. Lorimer, M. D., one of the members of the board, was in attendance

at the Health Officers' Course given by the Bureau of Municipal Research, New York City, and the New York Academy of Medicine in coöperation.

For some months past a venereal disease clinic has been in operation in Denver. This was established and is maintained with the assistance of funds from the Chamberlain-Kahn act. It is probable that at least two and possibly three more will be established before long.

A campaign is in progress for the establishment in Denver of a municipal sanatorium for tuberculosis, residents of this city only to be eligible for admission. With this is associated also the movement for the increase of county hospital facilities.

✻

Georgia.—The counties of Worth, Lowndes, Hart and Baldwin have recently put into operation the Ellis law, which provides for a full-time commissioner of health, and officers have now been elected in these counties. In other counties, among them Laurence and Dooly, the grand juries have recommended putting the law into operation, which practically assures its acceptance in them. The new Bureau of Vital Statistics is under way with Dr. W. A. Davis for director. Encouraging progress is being made in educating the people in making returns.

✻

Illinois.—Systematic measures are being taken to educate the physicians, coroners and undertakers as to the importance and methods of making registration of births and deaths. The fact is being emphasized that each certificate is a legal document, and for that reason the exact methods prescribed by law must be observed. Each certificate of death must be signed with pen and ink by three persons. Undertakers have been in the habit of writing the name of the informant and sometimes the name of the physician. Such certificates are illegal.

Conferences are being held with the members of various county medical associations throughout the state for the purpose of discussing these subjects.

Henry B. Hemenway, M. D., of the State Department of Public Health, has recently made a survey of more than thirty southern counties of the state with reference to the presence of malaria, hookworm and trachoma. Contrary to preconceived ideas no hook-worm was found, and he came to the conclusion that only isolated cases will occur in the state.

There has been a very material reduction in Illinois in the amount of malaria during the past ten years on account of better drainage, and other anti-malarial measures. In some sections the physicians have reported a decrease of 80 per cent in the malaria incidence. Advice has been given as to methods for eliminating anopheline breeding places without getting rid of water. This was through popular lectures and conferences with the physicians.

There is a great deal of trachoma in southern Illinois. In one school in Cairo 1.5 per cent of the children were found to be infected. A neighboring school showed much less infection though among the same class of pupils. In some sections it was reported by the physicians that the amount of trachoma is increasing; in others, it is decreasing. Clinics will be established for the care of trachoma in connection with the schools.

✻

Kansas.—Washburn College, Topeka, is among the institutions which at the graduating exercises of last month added to the available supply of young persons trained to be bacteriologists or laboratory technicians.

✻

Kentucky.—At Louisville on May 13 the Kentucky Public Health Association was organized. The county and city health officers of the state were assembled, the company listened to addresses by Harvey W. Wiley, former chief of the United States Bureau of Chemistry, Dr. Frederick L. Hoffman, third vice-president of the Prudential Life Insurance Company, and A. T. McCormack, secretary of the Kentucky State Board of Health. The object of the new association is to promote public health by stimulating movement and organizations for health promotion and to instruct individuals in methods of right living. The Kansas Public Health Association will be affiliated with the American Public Health Association and will be its representative in the state. Its officers consist of a board of directors, half of them elected each year, together with a president, secretary and treasurer, who shall be *ex officio* members of the board. The directors elected are President McVey of Kentucky State University; Judge Robert W. Bingham; Mrs. Helm Bruce; R. C. Ballard, American Red Cross; J. G. South, M. D.; Peter Campbell; Mat Cohen, commissioner of agriculture; Mrs. Lafon Ricker, president of the Kentucky Federation of Women's Clubs, and Dr. A. T. McCormack. The constitution provides for an annual meeting, which is to be a state congress on health which is to meet at the same time as the annual school for health officers.

✻

Minnesota.—The office of the Division of Venereal Diseases, State Board of Health, has been moved from St. Paul to the university campus where it is expected it will have permanent quarters. The Division of Preventable Diseases and the Divi-

sion of Sanitation with their laboratories are already located on the university campus. The Division of Venereal Diseases will establish its own Wassermann laboratory in the near future.

⚜

New Mexico.—During the last session of the legislature a bill was passed establishing the first State Board of Health for New Mexico. The board has been appointed and commissioned, and is as follows: Chairman, Mrs. A. Otero-Warren of Santa Fe; secretary, Mr. John Tombs of Albuquerque, and Oliver T. Hyde, M. D., of Albuquerque. New Mexico is the first state to appoint a woman to this position.

⚜

New York.—The Division of Communicable Diseases is initiating a campaign directed toward further reduction in the number of deaths from diphtheria and typhoid fever. In coöperation with local health officers and by using various educational agencies a special effort will be made to secure earlier use and adequate dosage of diphtheria antitoxin; to focus attention upon the danger both of loss of life and of municipal damage suits arising from neglect of potentially dangerous water supplies; and to safeguard milk supplies through encouraging the practice of requiring blood tests from all milk handlers.

During April twenty known cases of trichinosis with two deaths occurred at Mineville as a result of eating uncooked pork sausage.

With a public health nurse, and school nurse, a tuberculosis and venereal clinic at Plattsburg, a school nurse at Chazy, a visiting nurse at Ausable Forks, and at Lyon Mountain, and a county tuberculosis nurse provided for by the board of supervisors, Clinton County is well equipped for public health work.

Under the provisions of the county law relating to the establishment and maintenance of county tuberculosis hospitals and of the State Charities law which designates the duties of the superintendent of the Ray Brook Sanatorium, a three weeks' course of study for county tuberculosis hospital superintendents is being given at the Ray Brook Sanatorium. The only charge on the county is for the traveling expenses of the county superintendent to and from the State Sanatorium.

The Engineering Division of the New York State Department of Health is making surveys with reports and recommendations concerning the sanitary condition of the various Land Army Camps now being established throughout the state.

Instructions are being sent out by the Engineering Division of the State Department of Health to all New York state municipalities where auxiliary water supplies from questionable sources are known to be in use covering the proper installations of double check valves and other safeguarding provisions which will adequately protect the public water supply from possible pollution.

Plans of the New York State Board of Health contemplate anti-tuberculosis work in thirty-five counties in the state, arranged in groups according to the needs and the local facilities available. In one group there are no special facilities available at present for the expert medical examinations for tuberculosis; in another such necessary facilities are available but no clinics are either now in operation or the county is not thoroughly covered. Finally there are counties in which occasional clinic service is provided but not sufficiently often. Efforts will be made to provide all of these counties with an adequate number of occasional clinics held at frequent intervals so that all of the population will be served continuously. Superintendents and other members of the staff of tuberculosis sanatoria, specialists from health resorts such as those in the Adirondack Mountain district and the medical personnel provided by the two coöperating state agencies will participate in the clinical work. The services of experienced tuberculosis field nurses will be supplied by the state agencies, other representatives of which will act as organizing agents. Local physicians, health authorities, public health nurses, tuberculosis and other interested organizations and individuals will coöperate. The physicians will be specially invited to bring their doubtful cases to the clinics for consultation.

⚜

North Carolina.—W. A. McPhaul, M. D., health officer of Robeson County, is very enthusiastic with reference to the life extension work in which he is engaged. "We have examined about 500 persons here," he writes, "some of them will not pay much attention to what we have told them, but the majority will, and some of them will live from ten to fifteen years longer." He figures that if the average is only four years, the total will be an added 2,000 years of service. The life extension work as practised here consists in making a careful physical examination free of charge of all adults who apply. In a great many cases there was found to be more or less of physical impairment, and in some cases some insidious disease of which the patient was unaware till advised of it by the physician.

The vaccination campaign conducted by the State Board of Health is already under way in ten counties, Warren, Hertford, Bertie, Pasquotank, Perquimans, Chowan, Beaufort, Craven, Onslow and Wayne. The plan is to have a mass meeting with the leading citizens to discuss the importance

of typhoid vaccination, and to solicit the aid of the citizens of the county in making the campaign a success. There is great interest in the matter and it is believed that a large percentage of the population of the counties will take advantage of the offer of free vaccine.

The State Board of Health is calling the attention of the people to the fact that the rural population is not so healthy as the city population, and sets forth an explanation to account for the fact. The reason probably lies in the greater prevalence of the subacute, devitalizing, crippling diseases found in the country. As such diseases may be mentioned hookworm disease, almost entirely rural and affecting about 30 per cent of the people; malaria, affecting about 25 per cent of our rural people; chronic constipation, affecting 20 per cent of the people; suppurating gums, affecting at least 40 per cent of the rural population; and the common physical defects of childhood, as adenoids, diseased tonsils, defective vision, and bad teeth, all of which are astoundingly prevalent. The relative importance of these crippling diseases is not properly understood. They are so prevalent because they do not impose pain or discomfort sufficient to cause their victims to apply for and carry out effective treatment.

"Adenoid clubs" are a feature of the health program of North Carolina. The records of the North Carolina State Board of Health prove that there are not less than forty thousand school children in the state between the ages of 6 and 12 years who seriously need an operation for the removal of diseased tonsils and adenoids. Many of these children are in tubercular families. Many of them belong to families of which members have defective eyesight or hearing. Not more than 25 per cent of them are able to pay the fees charged by specialists. Fully 25 per cent of them are unable to pay anything at all. Thousands of them live from fifty to two hundred miles from a good specialist. While all of the first class specialists of the state are willing to help meet this condition, they cannot afford the sacrifice of time in operating on these children, one at a time at irregular periods.

To solve this problem, the Bureau of Medical Inspection of Schools of the State Board of Health, after about five years' study and experiment, has adopted the club plan of several children being operated on at the same time. The operation is safe when performed by a skilled specialist, and only the best bona fide throat specialist will be recommended for this work. All preliminary arrangements will be made in a county by a special registered nurse from the State Board of Health. The operations will be done at a selected point in each county, generally the county seat town.

Ohio.—A polyclinic institution for the public will be Summit County's memorial to her soldiers and sailors in the war if present plans are carried out. The county hospital law has been amended by the legislature to permit the establishment of county hospitals as war memorials.

Five more Ohio counties have enlisted in the movement to equip the state with public sanatoria for the care of tuberculosis victims, announced the State Department of Health recently. Preliminary organization for a new hospital district to consist of Licking, Muskingum, Fairfield, Coshocton and Perry counties was effected at a joint meeting of county commissioners in Newark Friday.

These counties comprise the eighth inter-county hospital district organized to date in the state. Five districts, including twenty-three counties, have hospitals in operation, and preliminary steps have been taken in two other districts besides the new one. At least two other groups of counties are considering hospital projects. Tuberculosis hospital districts, according to state law, are made up of two to ten counties, which unite for the purpose of voluntary action.

Fifteen cities have taken advantage of the state offer of help and have provided free facilities for treatment of venereal disease patients unable to pay for competent medical attention. A physician is provided by the State Bureau of Venereal Disease and equipment and quarters for the clinic are provided by the city. Provision is made under the state regulations for the prevention of venereal diseases, for the quarantine of patients whose habits make them dangerous to the public health. In addition to offering treatment facilities, the clinic serves as a center for educational work in its community.

The State Department of Health and city educational and health authorities are coöperating in a campaign against trachoma in Portsmouth. Following a survey of trachoma conditions in the schools made by representatives of the State Department of Health, it was estimated that approximately 1,000 cases existed. A clinic has been established under the direction of Dr. H. A. Green, who was employed by the State Department of Health for that purpose. Treatment at this clinic has been made compulsory for school children and is available for all other residents of Portsmouth. The state appropriation bill, which has been passed by the House and is pending in the Senate, carries a grant of $10,000 a year for trachoma work in Ohio for the next two years.

The local health machinery provided by the Hughes health district bill will go into operation in Ohio January 1 next. The coming six months will

be spent in perfecting the organization in the counties for work under the new law. This plan of action will be aided by the addition of eight district supervising health officers, funds for this purpose being provided by the pending appropriation bill. By next year approximately 100 county and municipal full-time health officers will have replaced 2,100 township and municipal health officers all but six of whom are now serving on the part time basis.

*

Texas.—The city of Dallas has taken an important step in the separation of the hospitals and other purely medical curative functions from the Board of Health. At a meeting late in May, the two boards met in separate rooms of the city hall, in accordance with the provisions of a new ordinance.

The Health Department includes the following twelve members, J. W. Embree, M. D., S. M. Freedman, M. D., John G. McLaurin, M. D., O. M. Marchman, M. D., S. L. Scothorn, M. D., J. J. Simmons, M. D., Mrs. E. P. Turner, Miss Mary C. Reynolds, Charles Saville, J. D. Harper, Alex Sanger and Joseph Utay. The organization of the board was effected with Dr. Embree as vice-chairman and Joseph Utay as secretary. The nomination was made of Leslie C. Frank of Baltimore, Md., for director of public health for the city. The budget for the new board for the year will be $50,000.

The members of the Hospital Board are: T. J. Crowe, M. D., J. W. Bourland, M. D., C. R. Hannah, M. D., W. C. Swain, M. D., Perry C. Baird, M. D., Mrs. Robert Ralston, Mrs. Alma Rembert, L. V. LaTaste and A. A. Jackson. Dr. Crowe was elected vice-chairman of the board, and Mrs. Rembert, secretary. The hospital board will have an appropriation of $100,000.

The Indexical Health Survey being conducted by the State Board of Health is revealing data of great interest. Statistics from representative sections of the state show that the people have lost annually, on account of sickness, an average of 10.17 days per capita within the past three years, representing an annual financial loss of $10.74 per capita, or $3\frac{3}{10}$ per cent of the incomes of the entire population. This is only the reduction in earning capacity and does not include the added cost of caring for the sick. Of the deaths occurring in the state within the past three years, 24.3 per 1,000, 45 per cent were from preventable diseases. Applying these figures to a city of approximately 20,000 population, out of 486 deaths, 200 were from preventable diseases. The people of such a city are losing annually from work, school, etc., an aggregate of 200,000 days, or 550 years in time, and $214,800 in earnings. About 5,000 school children are losing 25,500 days from school, the equivalent of keeping 141 of these children out of school altogether.

"The employment of an all-time health officer," said Dr. Goddard, state health officer, "working in coöperation with a local health board and the State Health Department would reduce these figures at least 25 per cent. For a city of 20,000 population this would mean an annual saving of $53,700, and the prevention of 40 deaths. In view of these facts, the State Board of Health is strongly advocating the employment of all-time city and county health officers by every city and county in Texas."

Texas is making preparations for very comprehensive educational campaigns among its citizens. In evidence of this the State Health Department outlines its equipment for the purpose in the following terms:

"In order to more economically and rapidly reach the people with literature from this department, we are installing an electric mimeograph machine, which will print 5,000 letters an hour, and an addressograph machine which will address 5,000 letters an hour, and a sealing machine which will seal 5,000 letters per hour. This equipment enables us to print, address, seal and deliver to the United States mails, 5,000 letters per hour under the United States frank. Later a stamping machine will be installed which in addition to the above will enable us to mail out 5,000 letters per hour where stamps are required. With these facilities for getting out letters, in addition to the other literature that we shall send out, we can successfully reach the people, and the only thing necessary to carry out this work is sufficient appropriation for the operation of the department."

*

West Virginia.—The state legislature of West Virginia failed to make the appropriations necessary to maintain the health car, and it is to be dismantled. It has been regarded by the health authorities as one of the most effective agents in their work. It is equipped with a bacteriological and chemical laboratory, motion picture machine with dynamo and engine and storage battery, more than fifteen rolls of motion picture film all pertaining to health subjects and a very representative set of models, a number of which are mechanical. One of the mechanical models illustrates the manner in which typhoid is spread by contact. A second model shows how wells can be contaminated by waste matter from unsanitary closets and drainage. A third shows two small children actually swapping candy, and questions as to what may happen if either of the children have influenza, pneumonia, or some other communicable disease.

There are also a large number of still models illustrating various fundamentals of public health.

Since January 1, in five months, the car has reached 70,000 people and has led to the appointment of six public health nurses, two full-time health officers, and the introduction of courses in sanitation and hygiene in a large number of country schools.

A typical example is illustrated by a conversation overheard between several small boys. One of the boys had been explained the danger of the unprotected well. He went out and got a number of his cronies and brought them into the health car and explained the whole problem to them. One of the boys was overheard to say: "I am going to get the old man to fix our well tonight." The attendants of the health car investigated and, sure enough, the old man was not only forced to fix the well, but to install a sanitary outhouse as well. Similar instances happen in nearly every community visited.

The West Virginia State Department of Health feels that the health car has been the most valuable piece of work yet undertaken and productive of the most good for the money expended on any single undertaking. The total cost of the operation of the car approximates $400 to $500 a month.

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Wisconsin.—Milwaukee had only two typhoid cases on record on June 4, an unprecedented low status of the disease.

Miss Clara Paddock, Brown County visiting nurse, in examinations of 2,000 school children this year, found one-third were afflicted with enlarged tonsils.

A township nurse, the first in the state, will be engaged by the town of Laona, Forest County. The funds have been appropriated.

Cancer caused 1,893 deaths in Wisconsin in 1918. The average number per year in the last eight years was 1,813, making this disease rank as one of the chief mortality causes.

Smallpox is prevalent in many sections. The State Board of Health issued general vaccination advice.

Richland County has established a county public health dispensary, and as an ultimate result a hospital is in prospect. This is said to be the first county health center in Wisconsin and one of the first in the United States.

Janesville organizations, schools and individuals joined in a health week program in May, using the schools, public meetings, posters, window decorations, and other effects to drive home the truth about healthful living.

Jefferson County has doubled its appropriation for a county tuberculosis sanatorium by voting an additional $50,000, bringing the total up to $100,000. In the institution now under construction forty-two beds are provided for.

A Red Cross survey found the practice of midwifery in Milwaukee in need of regulation, and the health department, which coöperated, promised rigid investigation. The survey was made as part of a national movement to appraise nursing conditions.

The state death rate for the first quarter of 1919 was no higher than the average for the last several years, despite influenza. The rate was 13.2 per 1,000. Pneumonia and influenza deaths were offset by the decline in deaths from practically all other communicable diseases.

A joint city dispensary and venereal disease clinic has been established at Green Bay and Janesville. At Green Bay the authorities also are considering employing a full-time health officer and establishing a city laboratory.

A staff of six women physicians representing the National War Work Council has conducted health educational programs in several Wisconsin cities, coöperating with the State Board of Health and other agencies. The staff included Dr. Lenna L. Meanes and Dr. Mae Halberricht, Des Moines, Iowa; Dr. Margaret Hammond and Dr. Inez C. Philbrick, Lincoln, Neb.; Dr. Gladys Cooper, Red Oak, Iowa, and Dr. Emilia Brandt, Omaha, Neb.

Dr. C. D. Partridge, formerly laboratory director of the Milwaukee Health Department, has become full-time health officer of Wausau, Wis., succeeding Dr. B. L. Shuster, resigned. He is also director of the new state coöperative laboratory, recently opened at Wausau.

Dr. James R. Bean of Philadelphia resigned as full-time health officer at Oshkosh, Wis., to return to Birmingham, Ala. He is succeeded at Oshkosh by Dr. Bertha V. Thompson of that city.

Miss Anna Thompson of Grandview, Wis., has been appointed county nurse for Bayfield County. She is a graduate nurse registered in Pennsylvania and Colorado.

Alderman Frank Alford, a Madison business man, has been chosen health inspector of Madison.

Miss Olive Andrews has resigned as sub-director of the state coöperative laboratory of hygiene at Oshkosh to be married.

Rock County, Wisconsin, has voted to employ a county nurse.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh and P. M. Holmes.

Dermatic Effects of Lubricating Compounds.—An intensive investigation in a Chicago steel plant, on the outbreak of furunculosis among its employees, was made by Deeds. The men so infected had the simple work of unloading steel bars from railroad cars to trucks and off of trucks to racks. The engineer at the plant had the first case, which was apparently spread to 15 other workmen by his habit of cleaning his hands daily in the barrel of paraffin oil which was used to coat the bars to prevent rusting. No men lost time from work, but some had as many as 8 to 10 boils at one time. From experiments conducted with paraffin oil and lubricating compounds, it was concluded that oils may have an irritant action on the skin, and, while neither germicidal in action nor directly supportive, oils and cutting compounds act as carriers of bacteria. Suggestions are made for the control and prevention of furunculosis and infections.—Forrest E. Deeds, *Bulletin, Working Conditions Service*, U. S. Dept. of Labor.

(*E. R. H. and R. P. A.*)

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Acetone, Alcohol, and Benzene in the Air of Certain Factories.—The amount of acetone, alcohol and benzene in the air of factories in which these substances were employed in the preparation of war materials has been estimated, the following figures indicating the quantity in grams per million cc. of air: benzene, minimum .01, maximum .9, mean .26; acetone, minimum .02, maximum 1.86, mean .31; alcohol, minimum .02, maximum 3.06, mean .65. The air was collected as near to the level of the mouths of the operatives as convenient. The results show a definite impurity in the air of factories in which the operations involve the use of the substances mentioned, but there appears to be little evidence as to the manner in which the health of the operatives is thereby affected.—*Abstract from the Analyst, The Lancet*, May 3, 1919, p. 772.

(*R. P. A.*)

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Influenza Among Poison Gas Workers.—Workers engaged in the production of poison gases other than phosgene gas have enjoyed a very high degree of immunity from influenza infection. At a large factory where upwards of 3,000 people were employed and to which whole-time medical officers were attached and full records kept, it was found that while the general body of the workers suffered from influenza to the extent of 50 per cent in each epidemic, among the poison gas workers only 13 per cent were reported as incapacitated on this account. Phosgene workers, however, are peculiarly susceptible to influenza and the disease when contracted assumes a serious course.—Frank Shufflebotham, *British Med. Jour.*, April 19, 1919, p. 478.

(*R. P. A.*)

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Standard Illumination in Vision Testing.—The Council of British Ophthalmologists appointed to determine standards of illumination for Snellen's test types for distant vision makes the following recommendations: (1) the test types shall be of the dimensions laid down by Snellen and printed on a matt white surface; (2) the minimum illumination on the test card shall be such that its brightness shall be equivalent to that of a new card illuminated to at least three-foot candles; (3) the illumination of the test types shall be as uniform as possible; (4) artificial illumination shall be used in preference to daylight; (5) the testing room shall be moderately illuminated and care shall be taken that there are no glaring lights or bright objects in the candidate's field of vision; (6) extreme contrast between the illuminated test card and the background shall be avoided; (7) the method of lighting described in this report shall be in general adopted; (8) this method shall be made compulsory for sight testing in all public services.—*British Med. Jour.*, January 4, 1919, p. 12. (*R. P. A.*)

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Anthrax and the Sterilization of Shaving Brushes.—A circular letter has been issued to state and local health authorities and others concerned by the Surgeon-General of the United States Public Health Service calling attention to a previous circular letter recommending the sterilization of all shaving brushes in trade channels and also to the continued occurrence of cases of anthrax due to infected shaving brushes. The surgeon-general recommends the following procedure for the sterilization of brushes: The brush should be soaked for four hours in a 10 per cent solution of formalin (by formalin is meant a 40 per cent solution of formaldehyde). The solution should be kept at a temperature of 110° F. and the brush so agitated as to bring the solution into contact with all hair or bristles.—*Public Health Reports*, May 9, 1919, p. 993. (*R. P. A.*)

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Anthrax and the Shaving Brush Industry.—The manufacture of shaving brushes is confined to about twenty establishments in the United States. Some

establishments make no pretense of sterilizing hair or bristles while others conduct the process in a very thorough manner. Horsehair is the most frequent source of shaving brush anthrax infection and is usually imported from China and Siberia. The hair is notoriously dirty and, although it is said to have been cleaned and disinfected before shipment, it bears no indication as to the manner or methods of treatment. Boiling or steaming affords a satisfactory means of treating the hair. Shaving brushes secured in the open market and submitted to bacteriological examination were found to be anthrax infected. Anthrax from this source has been reported among soldiers as well as among the civilian population.—*Public Health Reports*, May 9, 1919, p. 994. (*R. P. A.*)

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Welfare Work in the United States.—A study of welfare work for employees in industrial establishments in the United States has been completed by the United States Bureau of Labor Statistics. The field work extended over a period of 12 months during which time 31 states were visited. The study resulted in a 140-page report, which is a "comprehensive yet somewhat detailed account of the practice as it exists today, showing what is practicable and desirable in the various industries, and what features are inexpensive, easily administered, and popular, versus those which are costly to install and maintain and which prove less satisfactory than anticipated." The term "welfare" is defined as "anything for the comfort and improvement, intellectual or social, of the employees, over and above wages paid, which is not a necessity of the industry nor required by law." It is concluded that although welfare work is not a panacea for industrial discord, the indications are that, other things being equal, welfare work reduces the labor turnover, lowers the sickness and accident rate, and conduces to a better feeling on the part of the working force.—*Bulletin of the U. S. Bureau of Labor Statistics*, No. 250, February, 1919. (*R. P. A.*)

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Women Workers in Factories.—A study was made of 275 establishments representing 28 distinct industries, employing 40,651 wage earners, of whom 16,924 were women and girls, in order to ascertain the conditions under which women and girls were employed. The study concerned itself chiefly with the physical condition of plants and the physical welfare of the female workers. Of the plants studied, 42 were considered "good," 141 "fair," 79 "bad," and 13 "very bad." The initial weekly minimum wage paid in plants having day or time workers ranged from $4 to $11 per week, averaging $6.24. Recommendations for legislation include compulsory fire drills, definite standards for equipment of dressing rooms and wash rooms, the furnishing of hot water, definite standards for cleanliness of workrooms, abolition of home work and night work for women, and an appropriation for more women factory inspectors. Recommendations for welfare work include the provision of community lunch rooms, four legal holidays annually, annual vacations of one week with pay, morning and afternoon rest periods of ten minutes, provision of seats with backs and foot rests, a maximum of twenty-five pounds for women to lift repeatedly and equal wage for equal work.—*Women Workers in Factories, Consumers League of Cincinnati*, August, 1918. (*R. P. A.*)

✱

Influenza among Workers.—An investigation was made during the influenza epidemic among various classes of the population to see if there were any substantial grounds for the popular belief that men working in certain fumes are practically immune from nasal catarrh and respiratory diseases in general The classes studied and the percentage summary of case incidence are as follows: Navy, 40.0; Army, 20.0; cordite workers not in fumes, 30.1; cordite workers in fumes, 4.7; gas workers, 6.7; tin mine workers not in fumes, 60.8; tin mine workers in fumes, 11.1. Comparative study of these figures gives a remarkable picture of the immunity to influenza of workers in certain chemical fumes.—A. Gregor, *British Med. Jour.*, March 1, 1919, p. 242. (*R. P. A.*)

✱

United States Coal Mine Fatalities, 1918.—During 1918 there was a reduction of 4.5 per cent, as compared with 1917, in fatalities in coal mines in the United States. The total number killed was 2,579 in 1918 and 2,696 in 1917. There was a decrease of 233, or 64 per cent, in fatalities from gas and explosions. The electrical accidents under ground show an increase of 11.4 per cent, there being 88 in 1918. Haulage accidents show an increase of 5 per cent. While, because of the war stress, general conditions were not favorable for accident reduction, the fact that the mines operated practically full time would have a tendency to prevent accumulations of gas in old workings and perhaps maintain better roof conditions than are found in mines operated only part time.—*U. S. Bureau of Mines*, Supplementary to Bulletin 115. (*E. R. H.*)

✱

Code of Lighting for Factories, Mills, etc.—This reprint is practically the same as that put out as "Welfare Work Series, No. 3," by the Advisory Commission, Council of National Defense, under date of January, 1918. The present reprint, however, is fully illustrated.—*U. S. Public Health Service*, Reprint No. 499. (*E. R. H.*)

Defense of the Respiratory Membrane against Influenza, etc.—The natural defense of the mucous membranes of the respiratory tract against disease is due largely to the slight irritation of bacterial toxins, thus bringing more blood and tissue lymph to the part. There is evidence that workers in SO_2 in factories are relatively free from colds. Tobacco smoking, snuff, and smelling salts have the same effect. For prevention of influenza infection there is recommended the deep breathing of cool air, sleeping in open air, and, as an adjunct, any spray, gargle, or snuff which enchances the outflow of secretions from the respiratory membrane of the nose and throat. A sudden change from cold to warm humid air or from warm to cold air obviously strains the functions of the mucous membrane, hence the need to stay in a uniform atmosphere when infected with a catarrh.—Leonard Hill, *British Med. Jour.*, March 1, 1919, p. 238. (*R. P. A.*)

✽

Modern Industrial Medicine.—As a result of a study conducted by the United States Public Health Service of the medical and surgical care of industrial workers in the United States conclusions were reached which have been made the basis of a program of activities which may be said to constitute the program of modern industrial medicine, and includes the following: (1) selection and assignment of workers, including standardization of job requirements, physical examination of workers, vocational placement of workers, and instruction of new and transferred workers; (2) hygienic supervision of working conditions, including inspections, investigations, and the instruction of foremen and management; (3) health maintenance, including health instruction, provisions and facilities for care of health in the plants, the prevention of communicable diseases, the treatment of trivial illnesses, prophylactic and emergency dental attention, and surgical treatment; (4) better home and community conditions, including social aid, medical aid, and community aid.—C. D. Selby, *Modern Medicine*, May, 1919, p. 34. (*R. P. A.*)

✽

Tuberculosis in Industry.—An effort has been made to examine a large percentage of the population of Framingham. Out of a population of 17,000, between 10,000 and 11,000 have been examined either in special medical examination campaigns or through the normal workings of the medical machinery provided for factory groups, infant clinics, public schools, etc. Contrasts made between the industrial age group (15 to 44) on the one hand and the entire group of examinees on the other, show that the entire group presented a higher percentage of illness from all causes, the ratio being 77 per cent to 71 per cent. There is, however, the usual excessive distribution of tuberculosis cases to the industrial group, the figures falling in the industrial age ranging from 55 per cent to 68 per cent of the total. Efficient employment, medical and nursing organizations are recommended for combating tuberculosis in industry.—D. B. Armstrong, *Modern Medicine*, May, 1919, p. 51. (*R. P. A.*)

✽

Tuberculosis among Industrial Workers.—The Medical Research Committee has issued a report upon the prevalence of tuberculosis among industrial workers. Extremely meager statistical data were available for the study. The general conclusions reached were: (1) that the incidence of pulmonary tuberculosis among the employees in particular trades was higher than could readily be accounted for by the hypothesis that these trades attracted persons of inferior physique and low general resistance to disease-producing causes; (2) that the incidence among inhabitants of towns was similarly greater than could be accounted for by the general lowering of health associated with the bad home environment of the urban poor, and also pointed to an industrial factor; (3) that the proportionate mortality in women at ages from 15 to 45 has increased in a majority of registration districts since the outbreak of the war; (4) that the proportionate mortality in girls 15 to 20 has increased in the great industrial towns; (5) that a field inquiry in Birmingham has revealed a relatively greater incidence of tuberculosis among those employed in hygienically unsuitable factories.—*British Med. Jour.*, March 15, 1919, p. 316. (*R. P. A.*)

✽

Safety Practices in Gas and Electric Welding.—This 16-page illustrated bulletin describes safe methods of welding with the various forms of appliances. While chiefly devoted to accident prevention, the last page discusses dangers to eyesight and skin with proper protections indicated. —*National Safety Council, Chicago, Bulletin No. 23.* (*E. R. H.*)

✽

Industrial Physiology.—Lee names this new science "industrial physiology" and states that the physiological and psychological tests which have been employed with workers should have an application in selecting and assigning them to their jobs. The article is replete with succinct statements concerning most phases of physiology of work, including hours, night work, women in industry, the findings in the English munition workers, etc.—Frederick S. Lee, *Public Health Reports*, April 11, 1919, Vol. 34, No. 15, pp. 723–728. (*E. R. H.*)

Compensation for Occupational Disease.—The author summarizes the status of compensation for industrial diseases in the various countries throughout the world. Of the 42 states in the United States having workman's compensation, but 4 provide compensation for occupational diseases. What constitutes an occupational disease is discussed; also their classification under six groups given; a discussion of the guiding principles adopted by courts and commissions in compensating the same; the prevalence of occupational diseases as gained from Massachusetts' experience and that of Great Britain; and the cost of such compensation. Of the 6,061 cases compensated under the British Act in 1914, 91 per cent occurred in the mining industries, and of these 2,775 were nystagmus and 1,609 miner's beat knee. There were 344 cases of lead poisoning. The British compensation for industrial accidents in 1914 was $15,941,247, and for occupational diseases $922, 931, of which $34,547 was paid for fatal cases. The amount paid out on account of occupational diseases was, therefore, 5.8 per cent of the amount paid out for industrial accidents. The number of occupational diseases was 1.5 per cent of the total number of industrial accidents. The Canadian provinces have followed in the footsteps of Great Britain in their treatment of occupational diseases. It is to be noted that if occupational diseases are taken care of under health insurance, and the maximum period for benefits is 26 weeks, many occupational diseases will be inadequately compensated unless there is supplementary legislation for them.—Carl Hookstadt, *Monthly Labor Review*, U. S. Bureau of Labor Statistics, April, 1919, Vol. 8, No. 4, pp. 200–209.

(*E. R. H.*)

✻

The Basis for Compensation of the Soldier for Heart Disease.—The writers divide heart disease cases into (1) those with constitutional inferiority and functional heart disease, which cases are essentially useless for military purposes; (2) those with defective physical development and functional heart disorders, for which the most striking cures by graduated exercises can be accomplished; (3) nervous heart disorders, which cases deserve compensation only when their ambition has lead them to disregard symptoms in the attempt to "carry on" although they are fundamentally unfit for such strain; (4) functional heart disorders following infections, many of which can be completely cured in from six to twelve weeks by "therapeutic furloughs"; (5) post-rheumatic functional heart disorders, for which group compensation should be more liberal, since they are only "future problematicals"; hyperthyroid cases which should be regarded as completely disabled; and organic heart disease in which group, after several months of military oversight, the compensation should be allowed with due consideration for the expectancy of life and ability to continue in a wage-earning capacity. In the functional groups, histories of the previous occupation is most important. In the series studied, over 60 per cent of these functional groups had earned their living in light or sheltered occupations —they always take particular care not to injure themselves by hard manual labor; yet this group does better on exercise than on rest, although the exercise must be graduated from the smallest possible beginning. On the other hand, over 80 per cent of organic heart disease cases selected active pursuits, whereas such group requires rest, although a carefully supervised graduated exercise will do much for many of them. "Caution and skilled knowledge are prerequisites of successful treatment."—J. C. Gittings and Bernard Smith, *Jour. A. M. A.*, March 29, 1919, Vol. 72, No. 13, pp. 917–921. (*E. R. H.*)

✻

Lead Poisioning in American Industries.—As one of the Cutter Lectures in preventive medicine and hygiene, delivered at Harvard Medical School, Alice Hamilton presented this subject. A preliminary statement of the usual sources of lead poisoning is given. America has two great advantages over Europe, viz., that we do not employ women or many youths in the dangerous lead trades. However, several lead industries in America are attended with greater danger than in European countries. The technical lead hazards of many industries is next discussed with statistics of morbidity and mortality due to lead. The literature and theories on the manner in which lead gets into the human body; the question of individual susceptibility, which seems to include 70 to 80 per cent of persons according to Hirt; a paragraph expressing doubt on the question of greater susceptibility of the Negro race; a considerable discussion of sex susceptibility, tending to throw doubt on the usual statement that women are more susceptible; the evident effects of heredity; and the acceptance of Edinger's exhaustion theory, viz., that fatigue is the main factor in the localization of lead palsies, are discussed. Phelps has apparently settled one disputed point that in linotyping and monotyping, when the molten lead is stirred or skimmed or ladled, there is neither enough agitation nor a high enough temperature to allow of the escape of lead fumes and that the discomfort complained of by the linotypists is to be explained by the fumes from the gas used to keep the lead hot.—Alice Hamilton, *Journal of Ind. Hyg.*, May, 1919, Vol. 1, No. 1, pp. 8-21.

(*E. R. H.*)

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Note Concerning a New Rapid Panoptic Method of Staining the Blood and Parasites in Smears.—The great fault of panoptic staining, aside from the precipitates so easily formed, and which only an impeccable technic can avoid, is the time required for application. The one most in vogue, the technic of May-Grünwald Giemsa, requires at least thirty minutes. Arnaud has succeeded with a new procedure in shortening this period without losing any of the advantages of this panoptic method.

Prepare the smear in the usual way. Do not fix. Place the smear, face upwards, in a Laveran-Mesnil box. Cover largely with the May-Grünwald stain and cover the box to prevent evaporation of the methyl alcohol. Allow the stain to act for five minutes. Pour off stain and without washing cover the smear with Manson's borate-blue solution, used in the following manner: "Place in a tube a few drops of the mother solution. Add distilled water until a slightly translucent fluid is obtained. This is the solution for the second staining; allow it to act for forty to fifty seconds, then wash in distilled water. Differentiate in 90 per cent alcohol; wash again; dry and examine. The red cells are dark violet, the eosinophilic granulations are strongly stained with red, the fine neutrophilic granulations very visible, as well as the basophilic granulations. With regard to the parasites, their protoplasm is light blue, their nucleus strongly red.

Manson's borate stain is prepared as follows: Methylene blue, 2 grammes; borax solution (5 per cent in boiling water), 100 cc.

Thus in five minutes a staining is effected without any precipitates, which to say the least is comparable with the May-Giemsa and the azeo-bieosinate of Tribondeau. It is not necessary to be certain of the neutrality of the distilled water. Thorough washing with ordinary water gives very good preparations.—Roger Ornaud, *Compt. rend. Soc. de Biol.*, 82, 208 (1919).

✻

Influence of Incubation of the Wassermann Reaction.—Incubation at 1° C. gave stronger positive results than did incubation at 2° C., etc., up to 37° C., while the results obtained at 0.5° C. were identical with those obtained at 1° C. Incubation for twenty-four hours at 1° C. gave stronger positive results than incubation at 1° C. for fifteen hours. Incubation for five hours at 1° C. gave stronger positive results than did incubation for one hour at 1° C. Alcoholic extract of beef heart gave much stronger positive results than did acetone insoluble antigen of beef heart. Acetone insoluble antigen of beef heart gave much weaker positive results than did alcoholic extract of human heart.—E. H. Ruediger, *Jour. Inf. Dis.*, 24, 405 (1919).

✻

The Thick Blood Film Method for Malaria Diagnosis.—Thick smears may be made in two ways: 1, several drops of blood "puddled" with a circular movement of needle or corner of slide; 2, the drops of blood "dragged" sharply on the slide. This represents a thin smear thickened. The "drag" smear has several advantages: 1, the cells and parasites are subject to less distortion, due to quicker drying of blood; 2, a more uniform spread can be made with a drag smear than with the rotary smear of the other type; 3, the action of the acid alcohol in the process of dissolving the hemoglobin is more rapid; 4, this smear takes the stain more uniformly.

After the smear is made the best results are obtained if the slide is left perfectly flat until the blood is dry. Differential counts may be made from thick smears quite expeditiously. In order to dissolve the hemoglobin the slides are flooded with acid alcohol (2 per cent hydrochloric acid in ordinary grain alcohol) for about ten minutes. The acid alcohol is washed out in running water. The smear is now ready for staining. Methylene blue and eosin are used in preparing the stain. Full directions for the preparation of the stain are given. An examination of twenty minutes through thin blood smears is sufficient for diagnosis. In thick smears parasites are usually discovered within three minutes. A maximum of one hundred fields is sufficient to establish a negative finding.—B. Mayne, *U. S. P. H. Rep.*, April 25, 1919.

✻

Studies in Streptococcic Infections at Camp Custer, Mich.—Streptococci as observed at Camp Custer have manifested themselves almost uniformly as secondary invaders. It is impossible to divorce a discussion of streptococcic infection from such antecedent diseases as influenza, measles and the acute upper respiratory inflammations. Streptococci have been responsible for a variety of lesions, but their predilections for the respiratory system far exceed all other localizations.—W. B. Blanton,

C. W. Burhans and O. W. Hunter, *Jour. A. M. A.*, 72, 1520 (1919).

✽

Indol Production by the Pfeiffer Bacillus.—So few positive cultural characters have been recorded for the Pfeiffer bacillus that each additional biologic quality is of some interest. The majority of strains of the Pfeiffer bacillus examined by the author formed indol promptly. In all, thirteen strains have been tested. It was thought that throat swabs washed directly into the broth might give an indication of the presence of indol-producing Pfeiffer bacilli. A positive indol reaction has been obtained in about 83 per cent of swabs examined. It seems a fair presumption from the available data that indol production in blood broth inoculated with throat swabs is due to the presence of indol-producing strains of the Pfeiffer bacillus, although a final judgment on this point is hardly possible at the present time. Should this presumption prove to be justified, these results indicate the presence of Pfeiffer bacilli of this type in approximately 80 per cent of normal throats.—Edwin O. Jordan, *Jour. A. M. A.*, 72, 1542 (1919).

✽

Bacteriology of the Urine in Influenza.—In a series of ten cases of influenza the author was able to obtain cultures of *B. influenzæ Pfr.* by inoculating tubes of citrated pepton-water, to which a few drops of fowl's blood had been added, with urine drawn off aseptically from the bladder. In five of the cases *B. influenzæ* was associated with pneumococci in the urine, in four cases streptococci were present with the bacillus, and in one case staphylococci.—D. De La Riviere, *Compt. rend de la Soc. de Biol.*, 81, 824 (1918).

✽

Etiology of Yellow Fever in Guayaquil.—The clinical and pathological features of the yellow fever prevalent in Guayaquil conform with those described by other investigators of this disease as it has occurred elsewhere, both epidemically and endemically. By injecting into guinea pigs the blood of yellow fever cases occurring in Guayaquil a group of symptoms and lesions closely resembling those observed in human yellow fever were induced in a limited number of instances. Of 74 pigs 8, representing 6 cases, came down with the symptoms. Autopsies revealed deep jaundice throughout the entire tissue. The injection of the yellow fever blood into ringtail monkeys, rabbits, cats, guatasas, weasels, and sloths among the mammalians, and pigeons, ground-doves, bluebirds, mantas, blackbirds, parrakeets, reedbirds, blancos, and toucans among the birds, gave negative results. In the blood, liver, and kidneys of the guinea pigs experimentally infected with the blood of yellow fever patients, a minute organism was demonstrated which closely resembles in morphology the causative agent of infectious jaundice.

✽

Leptospira Icterohæmorrhagiæ.—The leptospira obtained has been given the provisional name of *Leptospira icteroides*. Guinea-pigs, dogs and monkeys were inoculated with the blood or organ emulsions of infected animals, as well as with a pure culture of the organism. The symptoms and pathological lesions induced in guinea-pigs are much more pronounced than those observed in dogs or marmosets. The period of incubation is nearly the same in all three species. The symptoms are given in detail. The symptoms and lesions closely parallel those of human yellow fever.—H. Noguchi, *Jour. Exp. Med.*, 29, 547 (1919).

✽

Chloramine and Crenothrix.—Chloramine is formed by treating dilute solutions of hypochlorites with dilute ammonia. The application of chloramine should be made under such conditions that the concentration of the mixed reagents shall not exceed 1 p.p.m. Such a dilution should not be stored longer than 24 hours. Chloramine has a phenol coefficient of 6.6, three times that of chlorine. This compound has been applied on a small scale to waters containing crenothrix and "controls" were run with bleach alone. A chloramine addition corresponding to 0.5 p.p.m. was effective in preventing the development of crenothrix.—W. F. Monfort and O. A. Barnes, *Jour. Am. Water Works Assoc.*, 6, 196 (1919).

✽

Agglutination.—There is ample justification for the conclusion that bacterial agglutination is a colloidal phenomenon that can be best studied in the light of the modern work on colloidal and physical chemistry. There is real need for intensive study of the complex interrelationships of the factors which govern this phenomenon that they may be more clearly understood, and the diagnostic use of agglutination put upon a more scientific, rather than a purely empirical basis.—R. E. Buchanan, *Jour. Bact.*, 4, 73 (1919).

✽

"Methods of Pure Culture Study."—The progress report for 1918 of the committee on the descriptive chart of the society of American Bacteriologists appeared under this heading in the *Jour. Bact.*, 4, 107 (1919). It is presented by H. J. Conn, H. A. Harding, I. J. Kligler, W. D. Frost, M. J. Prucha and K. N. Atkins. No bacteriologist can afford to overlook this valuable report.

Bacterial Variations Induced by Changes in the Composition of Culture Media.—By changing the character of media upon which a given variety of bacteria is grown, the chemical constitution of the bacteria can be made to vary, and with it, certain biological characteristics such as agglutinability with immune serum and the formation of sugar-splitting enzymes. In some instances the variations practically amount to the "production" of a new strain. Accompanying morphological changes appear to be relatively unimportant.—A. I. Dawson, *Jour. Bact.*, 4, 133 (1919).

✻

Value of a Cooked Meat Medium for Routine and Special Bacteriology.—The cooked meat medium is the most useful medium we have at present for obtaining growth of both anaërobic and aërobic bacteria, for storing mixed cultures for later isolation, as well as pure cultures for further investigations. The changes in reaction, color, odor and the evidences of varying degrees of proteolysis make it of the greatest importance in differentiating many of the types and adds to its value. It is further most useful in growing and storing cultures of the *Actinomyces hominis*, *Bacillus acne* and others. It is a medium simply made which can be readily sterilized and, owing to its high buffer character, is adaptable to the growth of a great variety of bacteria. The medium is prepared from fresh, lean, ground meat which is slowly heated to boiling. The emulsion is neutralized, tubed and autoclaved.—W. L. Holman, *Jour. Bact.*, 4, 149 (1919).

✻

Survey of Wassermann Reactions.—The article summarizes the results of approximately 10,000 Wassermann tests made in the Serological Laboratory of the Division of Health of the City of Cleveland during the period from August 1, 1916, to August 1, 1918. Of the 9,412 Wassermann tests made 6,475 were male cases, and 2,937 were female cases. The percentage of positives among the males was 23.71 and among the females 24.99. The percentage of positives among females between the ages of 16 and 25 was considerably higher than that of the males of the same ages. With exception of clerks and salesmen there was a larger percentage of positives among the married than among the single in the different occupations. The percentage of positives among housewives was 29.11. The percentage of positives among the married colored was 46.89 while among the married white 27.48. The percentage of positives among the single whites was 25.11 and among the single colored 37.09.—E. E. Ecker, *Am. Jour. Syph.*, 3, 260 (1919).

Sedimenting Suspension of Live Bacteria on a Large Scale.—The apparatus consists of a castiron jacket, opening on the front, with a swing door, which completely encloses a Sharles turbine-driven laboratory centrifuge, including its supply can. The jacket is so constructed that it becomes an autoclave, when the door is securely shut. A vacuum system is provided for, to facilitate the drying of the several parts of the machine. The apparatus has been found perfectly efficient for the preparation of vaccines and toxines. Two illustrations of the apparatus are given.—E. M. Houghton and N. S. Ferry, *Jour. Lab. Clin. Med.*, 4, 492 (1919).

✻

The Different Resistance of Typhoid, Paratyphoid A and B, and Colon Bacilli to Sodium Chloride.—The group paratyphoid B is distinguished from that of paratyphoid A by a relatively restricted number of cultural and biochemic characters, namely growth on potato, action on litmus-milk and lead-agar. In studying the resistance of different pathogenic organisms to sodium chloride, Nègre was able to establish the fact that paratyphoid A and B do not manifest the same resistance to this salt. Karaffa Korbutt studied the influence of sodium chloride upon pathogenic bacteria but he has never mentioned the different manner in which paratyphoid A and B behave in the presence of this substance. Nègre planted a hundred strains of typhoid, paratyphoid A and paratyphoid B, isolated in Algeria and France, upon agar containing increasing amounts of sodium chloride and observed that upon agar containing 3 per cent of salt the three groups behaved in the same manner, yielding an abundant growth in 24 hours. Upon agar containing 6 per cent of salt, paratyphoid B yielded a growth in 24 hours as abundant as upon ordinary agar, whereas paratyphoid A and typhoid were only exceptionally able to show any growth at this time and even in 48 hours showed a growth less abundant than paratyphoid B. Upon agar containing 7 per cent of salt, paratyphoid B in 24 hours showed a hardly perceptible growth; exceptionally it remained very thin, but in most cases it became heavy and continued to spread for 3 or 4 days, remaining always very abundant. Paratyphoid A and typhoid never showed any development upon agar with 7 per cent of salt. Upon 8 per cent salt agar, paratyphoid B still showed growth but extremely thin. It never showed growth on 9 per cent salt agar. The Gärtner, Ærstryck and Schottmüller strains behaved like paratyphoid B. B. coli showed a more abundant growth than paratyphoid B.—L. Nègre, *Compt. rend. Soc. de Biol., Paris*, 82, 387 (1919).

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CONSTITUTIONAL FOUNDATIONS OF FEDERAL PUBLIC HEALTH FUNCTIONS.

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Read before the Conference of State and Provincial Boards of Health, June 7, 1919, at Atlantic City, N. J.

Few health officers know where Federal health authority comes from. Dr. Goodnow unravels the legal maze and tells them it is a function of Commerce and of the power of Congress to lay taxes and duties. Public Health is therefore national in foundation and application.

THAT the government of the United States is a federal government is a commonplace not only to him who has made a study of its constitutional law but as well to the average citizen. The legal effects of the federal character of our government are, however, not altogether clear even to the lawyer, much less to him who has not been initiated into the mysteries of our constitutional law. The constitution contains so many general clauses that resort must continuously be had to the courts for interpretation and construction, with the result that the exact and precise meaning of many constitutional provisions can be ascertained only by an examination of a long list of decisions. Where no decisions have been made on a particular point, we must reach our conclusions as the result of argument based on decisions made with regard to other points.

There are, however, certain general principles of construction, a knowledge of which will be of great assistance in enabling us to reach a determination as to the extent of power possessed by the national government and is absolutely necessary to the answer of the question which has been chosen for discussion today.

Probably the two most important of these principles are:

First, that the national government may, under the constitution, exercise only those powers which have been clearly granted to it by that instrument; and

Second, that where the constitution thus clearly grants a power to the national government, the action of that government in the exercise of such a power is binding upon the states and upon the people of the United States even in case there may be a conflict between a national law and a state law.

To state these principles in another way it may be said that the national government is a government of enumerated powers, the presumption, where no mention of a power in the national government is made, being in favor of the power of the states, but state law must give way to national law in the case of all matters as to which the national government is competent and has taken action. The national government, although of enumerated powers, is supreme in the exercise of the powers enumerated.

If now we examine the constitution with the purpose of finding in the enumeration of powers granted to the national government

the mention of any power over the public health we shall discover that no such power has been expressly granted. We shall find, however, one clause granting the power to make all laws necessary and proper for carrying into execution any of the powers vested by the constitution in the government of the United States or in any department or officer thereof.

We must, therefore, examine some of the general clauses of the constitution with the purpose of ascertaining whether any of these when combined with the power to make all laws necessary and proper for carrying into execution the powers granted are or may be construed as granting to the national government powers relative to the public health.

The most important of these general clauses from the point of view of today's discussion is unquestionably the power to regulate commerce with foreign nations and among the several states. It is to be noted that the constitution neither defines nor describes "commerce," nor states what is the meaning of the words "regulate" and "among the several states."

At first, governed by the particularistic states rights ideas of the time, which were justified in large measure by the existing economic conditions, both Congress and the Supreme Court took a rather narrow view of the extent of this power. Thus when it came to be regarded about 1820 as necessary that the central government should make some provision for means of communication between the eastern states and the new states which had been established west of the Alleghany Mountains and in the Mississippi Valley, it was believed that the only authority possessed by Congress was to build roads, which after they were built should be handed over to the states. The states alone, it was thought, might administer them and care for their maintenance and repair.

The gradual centralization of economic conditions, which has been characteristic of American development, has, however, caused the adoption, at the present time, of a much more extended conception of national power under the constitution. Thus the meaning of the word "commerce" has been greatly enlarged. Commerce as a subject of congressional regulation embraces at the present time, in the first place, transportation by both land and water and the means and instrumentalities of transportation. Commerce, *i. e.*, the thing which under the constitution may be regulated by Congress, therefore includes not merely the act of transporting persons or things from one place to another, but as well both artificial land and water routes and their terminals such as harbors, the vehicles by which the act of transportation is performed, and the persons, both carriers, shippers, and consignees on the one hand, and employers and employed on the other, who are engaged in the act of transportation.

In the second place, commerce embraces purchases and sales and the negotiations entered into in order to lead to sales of all articles ordinarily made the subject of trade, as well as agreements for such purchases and sales, made both between the purchasers among themselves, and the sellers among themselves, on the one hand, and between the purchasers and sellers with each other on the other.

In other words commerce in the constitutional sense includes on the one hand the physical instrumentalities by which commerce is carried on and on the other hand the transactions on which trade relationships are based.

Finally, while commerce does not include manufacturing, the tendency is to regard manufacturing as a part of commerce where its regulation is necessary to the effective regulation of what is admittedly commerce.

All of these things, operations, and processes are regarded as within the regulatory power of Congress, provided they can be regarded as a part of commerce "with foreign nations" or "among the several states." Commerce of such a character is held to be that which originates in one state and terminates in another, as well as commerce which originates and terminates in the same state, provided the regulation of such commerce is necessary to the effective regulation by Congress of what is recognized as commerce with foreign nations or among the several states.

The word regulate is given an equally wide

meaning. Thus it is held that the power to regulate commerce includes the powers:

First, to construct, or provide, by the chartering of companies, for the construction of routes by land or water over which commerce with foreign nations among the several states is possible, and to lay down the rules to be observed by those making use of such routes.

Second, the power to regulate includes the power to determine the private legal relations which shall exist among those persons engaged in the commerce subject to regulation, so far as those legal relations may affect the carrying on of commerce. Thus Congress may regulate the contracts and liabilities between shippers and carriers, between carriers and their employees, between sellers and between purchasers, and between sellers and purchasers.

Finally, the power to regulate includes the power to prohibit commerce in certain articles and certain methods of carrying on commerce and to license those engaged in commerce.

The enormous extension which has been given to the power of Congress to regulate the commerce among the several states is causing the old distinction between a commerce among the several states which is subject to Congressional regulation and commerce within the limits of a single state which is subject to state regulation, almost to disappear and to subject all commerce to the power of Congress. This distinction has disappeared with regard to commerce carried on by water, which is spoken of as navigation.

The power of the national government to regulate commerce may be exercised, it will be noticed, not merely with the idea of promoting commerce from an economic point of view but as well as with the idea of limiting commerce in order to protect the public health or safety. It includes, therefore, the power to establish quarantines and to deny the right of entry into the country or of transportation from one state to another to objects or persons where that entry or that transportation may, in the opinion of the competent authorities of the national government, endanger the public safety.

The health powers which Congress possesses under the commerce clause are as a matter of fact, both because of actual conditions and also probably owing to our constitutional theory, larger in the case of foreign commerce than in that of commerce among the several states. At any rate, it is certain that in the case of foreign commerce the same perplexing questions which present themselves in the case of commerce among the several states do not arise. In the case of foreign commerce the only action the national government can, in the nature of things, attempt to take is action in the nature of an embargo or an inspection. There is no question that it may do either of these things.

In the case of commerce among the several states, however, conditions are different. Congress may, it is true, deny to almost anything it sees fit the right to be an article of interstate commerce, and may punish those who, contrary to the law, ship the prohibited article from one state to another. But it is incompetent to prohibit either the manufacture or the use within a state of an article however harmful, since these are matters within the jurisdiction of the states and not in that of the national government. All the United States government can do as a direct result of its commerce powers is to prohibit, under criminal penalties, the interstate transportation of articles.

Generally speaking, interstate or foreign transportation does not begin until the articles start on their journey. Any action which precedes transportation has to do with manufacture rather than with commerce and is, therefore, not within the competence of the national government except in so far as its regulation may be necessary and proper for the effective exercise of the power to regulate commerce. Transportation, furthermore, ceases when the articles have reached their destination and have either been taken out of the original package in which they were shipped or have left the hands of the person who brought them into the state, *i. e.*, the consignee. Congress may not regulate or prohibit their use after they have thus fallen under the power of the state.

The United States government may, however, as has been said, provide for the criminal punishment on the one hand of him who makes

the prohibited shipment and on the other hand of the consignee who sells the prohibited article before the original package is broken. To exercise this power, however, it must have the means of determining whether the article transported falls within the prohibited class. It thus may provide for the labelling of the articles transported and for the inspection at the place of manufacture of articles intended for interstate transportation as well as for the licensing of the persons engaged in their manufacture. The United States government has not, it is true, either inspection or licensing powers to the exercise of which manufacturers of articles destined for consumption within the state of manufacture must submit, but it has the power to deny to articles not inspected and not made by licensed manufacturers the right of interstate transportation.

Probably the two most notable attempts of the national government to regulate commerce among the several states in the interest of the public health are the Pure Food and Drugs and the Child Labor Act. The first, which forbade the transportation from one state to another of adulterated food products and drugs was upheld by the Supreme Court as a constitutional exercise of legislative power. The second forbade the transportation in commerce, among the several states, of goods made in factories in which children under fourteen were employed or in which children under sixteen were employed more than eight hours a day. This act was, by a divided court, held unconstitutional because it was regarded as an attempt to regulate the methods of manufacture within a state which were a matter for state and not for national regulation. The harm to health, which resulted from the manufacture of articles made by child labor, is done in the state of manufacture. The transportation of such articles cannot, in the nature of things, be harmful. The damage done is thus due to manufacture and not to commerce.

We must, therefore, conclude that the health powers of Congress to be derived from the Commerce Clause of the Constitution relate for the most part to the act of transportation as it has been defined by the decisions. Whether this will always be the rule is open to some question. For in other directions, of which decisions under the Anti-Trust Act are examples, actions which related to manufacture rather than to transportation have been held to come under the regulating power of Congress. On the theory that they were prohibited by the Anti-Trust Act combinations both of employers and employed with regard to manufacturing and sales within a state rather than transportation have been punished as illegal.

The second great source of national power with regard to the public health is to be found in the power granted by the Constitution to Congress to "lay and collect taxes, duties, imposts, and excises, to pay the debts and provide for the common defense and general welfare of the United States."

The powers derived by Congress from this clause of the Constitution are of two kinds. They are in the first place repressive and in the second place they are powers of positively promoting the public welfare.

In the first place Congress may, in the exercise of its taxing powers, impose on any occupation or any article which is deemed to be harmful a tax of a prohibitive character, for, as the Supreme Court has on more than one occasion said, "the power to tax is the power to destroy." An instance of the exercise of the taxing power by Congress with the purpose of making impossible the production of the article taxed is the law taxing phosphorus matches. An example more recent of this method of protecting the public health is the provision in the last revenue bill imposing what amounts to a prohibitive tax on all manufacturers employing child labor.

It will be noticed that the powers relating to the public health, which may be derived from the taxing power of Congress, are in some respects broader than those which find their origin in the commerce power. Under the former, methods of manufacturing within the states may for all practical purposes be prohibited, although Congress has no direct power of prohibition. Such a method of protecting the public health naturally lends itself to matters where prohibition rather than regulation is sought. But it may per-

haps be suggested that this method of prohibition permits of the accomplishment of a good deal to which at first blush it may not seem to be adapted. Thus, what is to prevent the imposition by Congress of prohibitive taxes on all manufacturers who do not provide safety appliances for the protection of their workers or who do not secure sanitary conditions under which work may be carried on? The only answer to this question is that, while the limitations on the taxing power of Congress are few in number and rather ineffective in character, it has usually been considered that the classification of articles and persons for taxation must have some reasonable relation to the object sought. It may well be that either because such a classification would be regarded as improper or because the attempt to exercise the taxing power in this way would be regarded as a palpable evasion of the constitution and an encroachment upon the rights of the states, such laws as have been suggested would be held to be unconstitutional. The result of the ligitation, which will unquestionably follow the attempt to impose special taxes on manufacturers employing child labor, will, doubtless, throw much light on this up-to-now unsettled question.

Another example of the use by the United States government of its taxing power in the interest of the public health is to be found in the so-called Harrison Act relative to the sale of certain drugs. The purpose of this act is not so much probihition as regulation. It is an interesting example, further, of an attempt to secure through the exercise of the taxing power information as to the users of drugs which is available for use by the officers of the states charged with the enforcement of laws regulating the use and sale of drugs. It may not be said that the use of the taxing power for this purpose is clearly constitutional.

But Congress may usê its taxing powers not so much to destroy as to promote directly the public welfare. That is, it may appropriate the money derived from the collection of taxes for helping the states solve their sanitary problems. It may establish, as it has established, a national public health service which may be authorized to coöperate with and assist the health authorities in the states. It may establish hospitals and sanitariums provided it secures the consent of the states in which they may be situated. It may make grants to the states in aid of their health administration and may make such grants subject to the condition that the states maintain certain standards and submit to inspection.

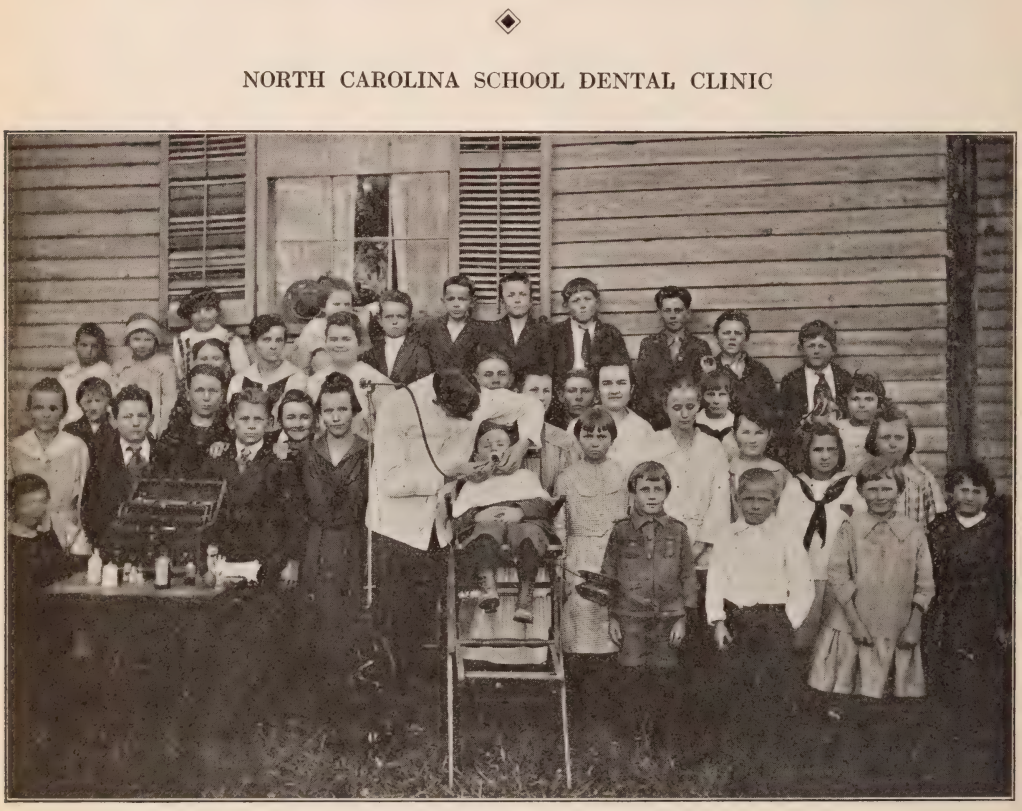
But while the United States government may thus exercise through its power of appropriating money a profound influence on state public health administrations and through them on the public health of the country generally, it may not of its own accord and without the consent of the states concerned step in to interfere with the sanitary work of the states.

In what has so far been said what has been borne in mind has been for the most part the power which the United States government possesses with regard to matters usually regarded as reserved by the Constitution for the states. It must, however, be remembered that the United States government has powers exclusively its own, such as its powers in the District of Columbia, the territories and the United State reservations. Here its power is unlimited by any consideration of states rights. Furthermore, in time of war its powers to raise and support armies, to provide and maintain a navy, and to declare war are construed to carry with them the power to do, even within state lines, what is necessary to protect the health of its soldiers and sailors. We have recently had notable instances of the exercise of such powers. But fortunately a state of war is not a normal condition, and while the health powers of the United States government at such a time are very important still they are infrequently exercised and consequently have little permanent influence.

A word also should be said as to the possibility of the exercise of health powers by the United States government as a result of its exercise of its treaty-making power. It is unquestionably true that Congress may exercise legislative power to carry out the provisions of a treaty which it would not possess had the treaty not been made. We have had, however, few instances of the

exercise of such powers and fewer still decisions upon their propriety. It would, therefore, be unwise, to base any large health powers upon so uncertain a foundation. But, it is well to remember that the tendencies nowadays are contripetal in character and that, with the increasing economic unity of the world, much may in the future be desirable if not necessary which in the past would have been considered almost outside of the realm of even speculation.

But whatever may be the outcome of the future, for the present it is safer to base such health powers as the United States government may possess upon either its commerce or its taxing powers, and there is little doubt that, with the increasing feeling that our national interests are growing in importance with the improvement in the means of communication, the powers of the United States government will increase to suit the changes in our national life. Insanitary conditions, as a matter of fact, are no longer of merely local concern. Epidemics are not respecters of state or even national lines. A keener realization of this fact will unquestionably have the effect of causing a broader interpretation of existing powers and may well result in constitutional amendment where such broader interpretation is not possible.



NORTH CAROLINA SCHOOL DENTAL CLINIC

This picture, the companion to one already presented in the June issue of the JOURNAL, page 435, shows a detail of the free dental clinics in North Carolina. This group was brought together at the Saratoga Rural School, Wilson Co., the manner of assembling the children by means of wagons and other conveyances, being shown in the other picture. Under North Carolina skies it is possible to have these clinics in the open air. The outfit is here shown although the dentist conceals his own features. The picture is especially valuable in that it conveys so excellent a portrayal of the kind of children attending these rural schools.

A DANGEROUS TENDENCY IN PUBLIC HEALTH ADMINISTRATION.

W. S. Rankin, M. D.,

President.

Presidential Address at the Conference of State and Provincial Boards of Health, June 6, at Atlantic City, N. J.

The "dangerous tendency" is that towards a division in Federal and state health administration. Its remedy lies in planning and developing a strong, alert Federal health agency properly related in its activities to the public health interests of the states. : : : :

A DANGEROUS tendency in public health administration is the subject of this address. My purpose in using this subject is threefold: First, to impress you with the existence of a dangerous tendency toward a division in both Federal and state public health administration; second to point out the cause and responsibility for this tendency; third, to suggest to the Conference a safe course under the circumstances.

That there is a decided tendency toward a division of public health administration among sundry agencies is shown by the following recent occurrences: First, the present attempt by the Department of Labor, through H. R. 12634, introduced by Miss Rankin, to annex the field of child and maternal hygiene, including, presumably, the large and as yet undeveloped field of eugenics. This attempted annexation of a large part of the domain of public health administration will include practically one third of the opportunities to reduce death-rates. Second, the proposed bill sponsored by the Department of the Interior, which makes use of the Federal aid extension principle to provide for school sanitation and hygiene, including the correction of physical defects. The central administration of this proposed law is properly placed under the joint direction of the Bureau of Education and the United States Public Health Service, but in the application of the law to state administration, the bill ignores the state department of health and places school sanitation and hygiene entirely under the direction of the state department of education. Under the provisions of this bill, state health authorities would lose all connection with one of the largest fields of Public Health Service, a field of service that touches in a most vital way one third of the entire population.

The tendency toward a division in public health administration is accentuated by the following unsolved problems that press for prompt solution: The first of these unsolved problems is the present irresistible general demand for public health nurses. If this demand is supplied without the active assistance of the health officials of the country, there will almost certainly be complications between those responsible for public health administration in general and that agency which, responsive to the popular demand, supplies and controls the public health nurses. A second unsolved problem that will not wait much longer is a plan for supplying the great need for an interstate agency for public health education. Such an agency would prepare and distribute, at a minimum cost, bulletin material, newspaper material, especial pamphlets, exhibits, moving picture films, and such other educational material as boards of health use in common. Here we have the same sort of need and place for service in the educational work of public health officials that existed in the news service of the country before the organization of the Associated Press.

The danger of the tendency toward division in the administration of health problems is self-evident, but, I fear, not fully appreciated. A fission, cleavage, division, two closely approximated bodies or agencies, and then follow overlapping, gapping, friction, and lost efficiency. No member of this Conference

should get the idea that a division in public health administration, beginning at and temporarily confined to Washington, does not concern him. Just as certainly as nuclear or central division is followed by mass or peripheral division, just so certainly will a division in Federal health administration be followed ultimately by a division in state health administration. Two central agencies in Washington will feel that a single peripheral or state agency through which both attempt to operate is a thing that connot serve two masters, and, therefore, each central agency will attempt to create and to do its work through its own state agency, as exemplified in H. R. 12634 for child hygiene.

I now pass to my second purpose, namely, to point out the cause of this danger. There are no vacuums in the world of necessary service. In general, when a great opportunity for rendering an important service arises, it remains but a short time unrecognized and unutilized. Either those who hold a clear title to the opportunity take advantage of it, or, through their blindness or weakness, neglect it, and others, more alert and responsive to public needs, grasp and develop it. In particular, enticing opportunities for certain forms of public health work have presented themselves; public health officials have failed to grasp them; others have. Here, then, we find the cause of the tendency toward a division of public health administration among sundry agencies.

And, now, who is responsible, the alert, ambitious, enterprising persons or agencies that recognize and appropriate great and neglected opportunities for service, or the less alert, less ambitious, less enterprising persons or agencies who are either too blind or too weak to use their opportunities? To be a little more personal, for responsibility only becomes effective when administered hypodermically, we must now endeavor to find those persons or agencies that have permitted others to occupy important fields of service that do not by clear title belong to them.

In establishing responsibility in this matter, we would naturally look to national organizations to recognize and provide for the development of effective public health administration; furthermore, for dealing with public health needs of an administrative character, we would look to national organizations composed largely of public health administration officials. There are only two national organizations composed of a homogeneous membership of public health administration officials,—one the Conference of the Surgeon-General with the State and Territorial Health Authorities, and the other the Conference of State and Provincial Health Authorities, this Conference. The charge of neglect of opportunities and thereby of losing large fields of possible service to others, it seems to me, must lie against one or the other of these two organizations.

My understanding is that the Public Health Service denies responsibility, taking the position that its functions are (1) research and demonstrations, with the publication of findings and results; and (2) the administration of certain Federal health laws. My further understanding is that the service denies responsibility for direct initiative in shaping national health policies. If this position of the service be accepted, it leaves the responsibility for assuming the initative in public health administration, Federal and state, with that organization composed of the official public health representatives of the sovereign states—with us; moreover, whether or not we accept the contention of the service that it is not responsible for the initiative in the shaping of Federal health policies, we must admit that the opportunities of state health administration officials for influencing Federal health legislation are many, many times greater than that of the officials of the service. The state health administration officials are in intimate personal and official touch with the governors, the general assemblies, the congressmen and senators of the states; they are the trusted official advisors of their states, and the representatives of state public health interest at both the state and the national capitols. Where opportunity is, there responsibility rests. I take it that no one here will contradict the statement that this Conference can do more to insure against the danger of a divided public health administration than any other agency. The

conclusion, therefore, seems justified that this organization is more largely responsible for the present tendency toward division in health administration, Federal and state, among sundry agencies than any other.

I now pass to the third purpose of my address, to wit, the treatment of the dangerous tendency that I have pointed out. In this, the Conference must take the initiative. The Conference must realize keenly its responsibilities. It must stop leaving it to George. This means a considerable change in our attitude. Heretofore our point of view has been too fractional and not enough integral,—fractional in two respects: First, we have seen and dealt with the public health problem not in its entirety, but in pieces. Look at our programs; see the special committees, as, for example, the Committee on Hookworm Disease, the Committee on Pellagra, the Committee on Poliomyelitis, the Committee on Railroad Sanitation, the Committee on Courses in Sanitary Instruction, the committee on this and the committee on that down to the Committee on the Disposal of the Dead—all very good so far as they go, but they do not go far enough. These numerous special committees serve to give a variety of interest to the Conference and to diversify its efforts, but they do not serve to give a comprehensive point of view fixed on one great objective. Second, we have been fractional in our point of view in a geographic sense. The individual members of this Conference have been too largely influenced by the needs of their own states. We have been too provincial and not enough national. The Conference has lacked cohesive strength.

In shifting our primary interest from special health problems to the general health problem, we shall find need for an entirely new type of committee—a committee charged with the responsibility for determining the general policy of this Conference and proposing the best means for developing such a policy,—in short, we shall need a steering committee. Such a committee should be composed of nine members, including the two chief officers of the Conference, and should be selected to represent different sections of the country, keeping in mind in the formation of the committee those states of the Union with strong political influences in the machinery of our national government. The members of the committee should understand that it will perhaps be necessary for the committee to meet three or four times during the year for two or three days at each session, and no one should be appointed or accept appointment on that committee who is not willing to make the necessary sacrifices for the larger objectives of this Conference. The first members of the committee should be appointed for variable periods of service, and successors appointed on their retirement. This would give a self-perpetuating committee and make for continuity and permanency of policy. The committee should have the right to appoint and enlist the advice and assistance of authorities on public health administration that are not members of this Conference.

The committee would begin its work by invoicing our assets or opportunities, and our liabilities or duties. It would make a survey of our field of service, establish our lines and corners, and make such provision for the utilization of our rightful territory as to anticipate and discourage its further invasion and annexation by others.

Without anticipating the program of a steering committee, but to emphasize the importance of its work by indicating a few of its more important lines of activity, I will mention only a few of its larger and more immediate duties.

Through this committee, the Conference would assume the initiative in planning and developing a strong, alert, Federal health agency properly related in its activities to the public health interests of the states. One of the chief reasons for the division in health administration at Washington is the fact that the present Federal health agency is not strong enough in organization and resources to occupy the entire field of public health administration, and to command that respect and confidence necessary to deter other departments of the Federal government from taking over the administration of public health problems. Time will not permit me to go into detail in pointing out the various ways by which a strong Federal health agency would

assist in the development of state health work. I must leave this inviting phase of my subject to your own thought and imagination. I am convinced myself that the individual member of this Conference can do nothing for the development of his own state health work that will count so much as in assisting actively and persistently in the development of a strong Federal health agency. The popular demand for a strong Federal health agency will not be much longer denied. Some organization will take the initiative and will exert a dominant influence in the establishment and organization of such an enlarged service. This Conference is in a more advantageous position to lead in this great work than any other organization. If we shall neglect this greatest of all our opportunities, and others, with justifiable impatience, do or attempt to do our work for us, we shall have to follow where we ought to have led, and we shall have to be content with the work of others even if it should largely ignore our official interest.

While the development of an adequate Federal health service with proper relation to the states constitutes our larger field of opportunity, and while a program directed to the realization of that larger opportunity would embrace many of the lesser problems of this Conference, the committee would find some of these other problems of such urgency and intrinsic importance that their solution should not have to wait on the attainment of the larger aim of the Conference.

One of these problems that seems to be pressing for early solution is the establishment of an interstate agency to prepare and supply standard educational material to state boards of health, including bulletin material, press material, exhibits of all kinds, and films, and all of such excellence in workmanship as to command the right of way with all boards of health. It is to be hoped that the attention which Doctor Bolduan brought to bear on this matter at the Conference of the Surgeon-General with the State and Territorial Health Authorities this week in Washington, will result in something definite that will completely meet the needs of the states. The steering committee should proceed at once to ascertain from the various state boards of health the funds they are expending in educational work, and the possibility of standard forms and material. It must be admitted that at least 80 per cent of the public health problems of the United States and Canada are common to all the states and provinces, and that only about 20 per cent of the problems, like malaria and hookworm, are of regional interest. It must be admitted, further, that the preparation independently by thirty, forty, or fifty state or provincial health agencies of educational material dealing with these common problems is a waste, a great waste of both human energy and money,—a waste that this Conference cannot justify. We spend much time back home preaching coöperation; let's practice a little.

Another problem of such urgency that it calls for immediate attention, grows out of the popular and insistent demand for public health nurses. This demand is being made upon both the official health agencies of the country and upon the Red Cross. Both agencies are responding to a limited extent, but without any coöperative understanding. It is essential to the best interests of both the American Red Cross and of the official health agencies of the country that a plan of coöperation for supplying and supervising public health nurses shall be developed at the earliest convenient date. Without such an arrangement, overlapping of work, unrecognized opportunities, misunderstandings, waste in both money and effort are sure to occur. The state health officials, if they fail to recognize the significance of a strong American Red Cross with a well-developed peace program and what it may mean to the future health work of this country, will have neglected one of the greatest opportunities that will ever come to them for a strong alliance, mutually helpful and far-reaching for both agencies.

Our program this year has been prepared with these larger objectives of the Conference in mind. The address by Doctor Goodnow, perhaps the most eminent authority on constitutional law in this country, will furnish the necessary information with respect to the constitutional provisions and limitations that a steering committee would need in developing

a plan of Federal health work acceptable to this Conference. The address by Assistant Surgeon-General McLaughlin will supplement the address by Doctor Goodnow and would assist a steering committee in arranging for a proper relation between Federal and state health activities. The address by Doctor Farrand, president of the American Red Cross, will bring out the mutual interest existing between the American Red Cross and the official health agencies of the country, and indicate the general principles of coöperation by which the two agencies may assist each other in their closely related fields of service.

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THE PRESENCE OF FECAL AND NON-FECAL TYPES OF THE COLON BACILLUS IN VARIOUS TYPES OF WATER.

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An investigation of the origin of members of the colon-aërogenes group. "High ratio" aërogenes come probably from grains or cereals, while "low ratio" colon betoken probable human contamination.

SINCE the work of Theobald Smith (1) in 1893 on the detection of the colon bacillus in water by means of the fermentation tube, the isolation of this organism in drinking water has been used as an important guide for the sanitarian. The work of Rogers, Clark, Lubs, Levine, Winslow, Klinger and others has recently demonstrated that the original *B. coli* can now be separated into two groups, namely, the *B. coli* and the *B. aërogenes* group. The *B. coli* type gives a low carbon-dioxide ratio, a positive methyl red test for acidulation, and a negative Voges-Proskauer reaction, while the *B. aërogenes* type shows a high carbon-dioxide ratio, a negative methyl red test, and a positive Voges-Proskauer reaction. The former type is more frequent in the feces of man and many animals, and the latter is much more abundant on grains and cereals.

Winslow and Cohen (2) have collected the results of the various authors who have described the relative proportion of these two types in feces, sewage, raw, stored, and filtered water, grains, and soil, and they show that the low and high ratio types were present in the following percentages in these various materials:

In the feces of men, horses, cows and other animals a low ratio type was present in 92 per cent of cases and a high ratio type in 8 per cent of cases. In sewage a low ratio type was found in 77 per cent and a high ratio type in 23 per cent. In raw water a low ratio type was found in 75 per cent and a high ratio type in 25 per cent of cases. In stored water a low ratio type was found in 95 per cent and a high ratio type in 5 per cent of cases. In filtered water the low ratio type was found in 97 per cent of cases and the high ratio type in 3 per cent of instances. On grains the low ratio type was found in 9 per cent of cases and the high ratio type in 91 per cent of cases, and from soil the low ratio type was found in 28 per cent of cases and the high ratio type in 72 per cent of cases. The presence of a high percentage of the high ratio type in sewage and raw water can be accounted for by the fact that the washings from grain and soil are often swept into the water of a river as well as the washings from the feces of

men and animals, but it is difficult to account for the very low percentage of a high ratio type of organisms in stored and filtered waters.

The above mentioned observers have also made an investigation "to add to the scanty evidence in regard to the relative prevalence of the *B. coli*, and the *B. aërogenes* types in waters of known sanitary quality in order to throw light on the significance to be attached to their presence.

Their samples were collected from sources known to be polluted, sources unpolluted beyond a reasonable doubt, and samples of stored raw water used for municipal supplies, and of high sanitary quality. In a study of two hundred and fifty-five strains isolated from these sources they came to the conclusion that there was no connection between the type of organisms and the corresponding source.

Since they state that "the final proof or disproof of any such connection must come from extended study in as many different parts of the country as possible," I have thought it worth while to describe some observations made in Baltimore, and other parts of Maryland.

The Baltimore water supply is obtained from a rather small river running through a densely populated adjacent county, and this river is subjected to many pollutions from farms, villages and small towns. The water, however, is impounded by a large dam and then subjected to sedimentation by coagulation, filtration, and final chlorination.

During the present year we have made type determinations on one hundred and sixty-one specimens of lactose fermenting organisms, and the following table will show the result of these determinations. This table is based upon the group reactions in *Standard Methods of Water Analysis*, A. P. H. A., 1907, page 108. We were unable to differentiate between the *B. aërogenes* of fecal and non-fecal origin since we were unable to obtain any adonite. The unknown organisms mentioned did not absolutely conform to any of the groups described in *Standard Methods*.

The results of our type determinations, however, can be broadly grouped into three classes, namely, the low ratio colon group, the high ratio aërogenes group, and the gelatin liquefying cloacæ group. The unknown types under these three subdivisions were methyl red positive gelatin negative, methyl red negative gelatin negative and methyl red negative gelatin positive, positive meaning the liquefaction of gelatin. We, therefore, found low ratio methyl red positive organisms in 51 per cent of cases, high ratio methyl red negative in 16.7 per cent of cases and high ratio methyl red negative but gelatin liquefying organisms in 28.6 per cent of instances. These groups correspond respectively to the colon type, the aërogenes type and the cloacæ type.

Table Showing Types Isolated from Filtered Baltimore Water.

Colon, fecal type	83 or 51.5%
Colon, unknown type	5 or 3.1%
Aërogenes, fecal type	5 or 3.1%
Aërogenes, unknown type	22 or 13.6%
Cloacæ type	23 or 14.3%
Unknown type	23 or 14.3%
Total	161

An attempt has also been made to ascertain as far as possible the various sources of low ratio, high ratio, and gas-producing, gelatin liquefying *B. cloacæ* organisms in drinking water from various sources throughout the state of Maryland, including chlorine treated and untreated water, raw and filtered waters, spring water and well water. Specimens from milk, oysters, sewage, human and bovine feces and urine, cereals and grains were also examined, and the results are expressed in the following table:

TABLE I.

Sources and Relative Frequency of the Three Types of Organisms Found in a Study of 1,145 Cultures from Eighteen Different Sources.

Source.	No. of samples	No. of cultures	High ratio	Low ratio	B. cloacæ
Water	444	528	294	192	42
Milk	271	271	129	109	33
Oysters	54	54	23	26	5
Sewage	23	31	12	18	1
Stools, human	11	141	0	118	23
Stools, bovine.	1	15	2	13	0
Urines, human	2	28	1	24	3
Corn meal	1	0	0	0	0
Grape nuts	1	0	0	0	0
Post toasties	1	0	0	0	0
Corn flakes	1	7	3	4	0
Puffed wheat.	1	0	0	0	0
Quaker oats	1	15	3	11	1
Rye	2	17	15	2	0
Corn	2	18	18	0	0
Wheat	1	6	1	2	3
Barley	1	8	8	0	0
Oats	1	6	5	1	0

As will be seen in Table I, more than half, or 55.6 per cent, of the members of the colon-aërogenes group isolated from water belonged to the high ratio group; 43.9 per cent of this group were obtained from the cultures isolated from milk, and 42.5 per cent from oysters. In sewage the high ratio group was present in 38.7 per cent; in feces (human and bovine) and urines in only 1.6 per cent; in cereals in 26.18 per cent and in the various grains in 85.4 per cent. It is interesting to note that there were no high ratio organisms in the one hundred and forty-one cultures obtained from human stools.

Table II shows the relative proportion of the three groups of organisms in raw, filtered and chlorine treated waters obtained from one hundred and twenty-two wells, twenty-seven springs, and the public water supplies of eleven towns in Maryland. There is nothing striking in this table excepting that it shows that filtered and treated waters contain a somewhat higher percentage of low ratio organisms than raw water. Of greater interest is the fact only one low ratio organism was found in fourteen samples of water from artesian wells containing members of the colon-aërogenes group. Twelve of the samples contained high ratio organisms and one the *B. cloacæ* type.

TABLE II.

	High ratio	Low ratio	B. cloacæ
Raw waters	116	62	5
Filtered waters	12	38	3
Waters treated with chlorine or hypochlorite	60	60	6

Rogers (3) has shown that the *B. aërogenes* is more resistant than the *B. coli*, and that its percentage as compared to that of *B. coli* gradually increased during long storage. This same percentage increases in polluted water as the specimens are obtained further and further from the source of pollution, and the preponderance of *B. aërogenes* over *B. coli*, or an opposite condition might be considered an indication of immediate or remote pollution.

In the routine examination of drinking water, a specimen is frequently met with which contains colon bacilli, as tested by the present Standard Methods of Water Analysis, but which on chemical examination shows no evidence of intestinal pollution, and a sanitary survey of its source shows no reasonable cause to suspect fecal contamination. In the studies already cited it was found that more than 50 per cent of the colon-aërogenes group isolated from water belonged to the high ratio type, and it was to determine whether or not it would be practical to consider waters containing this type as free from pollution that the following tests were made.

Ten colonies from Endo plates were fished from each of 59 samples of raw water and 38 samples contained but one

type of organism; 24 of these contained only high ratio organisms; 13 contained only low ratio types, and the *B. cloacæ* type was found in one. Plates from the 21 remaining samples contained two or more types of these bacteria, *i.e.*, each sample contained both high ratio and low ratio types, with an occasional *B. cloacæ*.

Dr. H. W. Stoner, who made these tests of state waters, had intended to compare the results with the sanitary survey made in connection with each sample, but his untimely death interrupted this part of the investigation. It is significant, however, that a larger percentage of wells and springs contain a preponderance of either low or high ratio groups, while a smaller number contain a mixture of both groups. It would have been interesting to have known whether the sanitary survey showed pollution from human or animal feces in the low ratio and mixed groups, and only soil pollution from the high ratio group. Further work in this matter should be carried out.

Summary and Conclusions.

The colon-aërogenes group of bacteria has quite a wide distribution in nature.

A study of the sources of the various types shows that the one known as the high ratio is constantly present on grains, and cereals and only occasionally found in stools and urines. On the other hand, the low ratio type is constantly present in stools and urines but is rarely found on grains and cereals. The *B. cloacæ* type is less frequently found, and is obtained from both these sources in about equal proportion. It therefore seems that grains may be regarded as the principal source of the high ratio type and stools and urines of the low ratio type.

In the bacteriological examination of drinking water it would not be safe to assume that the water was free from intestinal pollution if but two or three colonies were studied from each specimen. However, if twenty to twenty-five colonies be picked from each sample, and all are found to be of the high ratio type, it might be safe to regard the water as free from fecal contamination provided a chemical examination and sanitary survey gave no evidence of pollution. Of course, the isolation of even one low ratio type from a sample would indicate intestinal contamination. It would be impractical to examine twenty or twenty-five cultures from every sample of water in general routine work where a number of samples are examined, but the method can be applied to special samples and to those that, from a sanitary survey and chemical tests, show no evidence of pollution.

Literature.

1. Wilder Quarter-Century Book, 1893, p. 187.
2. Jour. Infect. Dis., 1918, 23, p. 90.
3. Jour. of Bact., 1918, 3, p. 312.

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The **National Municipal Review** (Philadelphia: National Municipal League) has become a monthly with its May issue. This change has been in response to a widespread demand on account of the increasing importance of the magazine. Its position as the organ of a live association assures to it freedom of expression and an opportunity for advanced and even prophetic thought. It numbers among its contributors the foremost municipal specialists in the country, men interested in the dissemination of good principles in municipal management and men, indeed, who have been foremost in inaugurating the reforms that are directed at honest and efficient city government.

English Birth and Death Rates.—During the last quarter of 1918, the death rate in England exceeded the birth rate for the first time in the history of civil registration in that country. When the facts became known, the War Office released 700 physicians from the army in one week. The death rate was greatly increased because of the large number of influenza deaths. The number of deaths from this cause was 98,998, or 41 per cent of the total deaths, for the quarter. It is believed that the lack of physicians in controlling the disease materially aided in swelling the number of deaths.—*Boston Medical and Surgical Journal*, May 8, 1919. (*M. P. H.*)

MEATS—THE PRESENT ASPECT OF SUPPLY, CONSERVATION AND DEVELOPMENT.

W. H. Lipman, M. D.,

Medical Director, Swift & Company, Chicago, Ill.

Read before the Food and Drugs Section, American Public Health Association, December 12, 1918, at Chicago, Ill.

Eight million food animals die each year from disease and exposure on ranches and farms. A million more are condemned in the abattoirs. This waste calls for preventive work, which is under way, and for conservation through utilizing better the coarser meats and the fats. Here is advice for wasteful Americans, who usually take only the best.

IT is not necessary to tell an American audience today that food helped win the war. Almost from the very first day of the conflict the allied countries depended very largely on the United States for their indispensable food, wheat, meat and fats, for their armies as well as for the civilian population. Without American food the allied armies could not have been kept in the field as long as they were and allied labor could not have produced the needed war material.

Now that the treaty has been signed and the world is beginning to learn the true state of affairs in the countries of the central powers, it is becoming evident that lack of food contributed largely to the collapse of the enemy.

From olden times to the present day meat in some form has been an important part of army rations. Officers state that our Filipino troops have become finer and stronger physically since they were put on full United States army meat rations, and the same is true of the civil population that changed from vegetarianism to meat-eating.

More than one half of the people of the world eat little meat. The English-speaking peoples are the greatest meat-eaters. Asiatics, with the exception of the Siberians, eat very little meat, although consumption of meat in Japan is gradually increasing. The per capita meat consumption of a country has been referred to as a good index of its prosperity. Thus, Australia, the richest per capita country in the world, is also the greatest meat consumer. It has been estimated that 50,000,000 of the world's population eat the bulk of the meat produced and the per capita consumption has been estimated at 93.3 pounds dressed weight of beef, mutton and pork, including the fats and other products.

The per capita consumption of meat for the leading countries has been estimated by the United States Department of Agriculture from available sources as follows:

Australia	262 pounds
New Zealand	213 pounds
United States	171 pounds
Argentina	140 pounds
Canada	137 pounds
Cuba	124 pounds
United Kingdom	120 pounds
Germany	116 pounds
France	79 pounds
Denmark	76 pounds
Switzerland	75 pounds
Belgium	70 pounds
Netherlands	70 pounds
Greece	68 pounds
Austria Hungary	64 pounds
Norway	62 pounds
Sweden	62 pounds
Russian Poland	62 pounds
Russia (Poland out)	50 pounds
Spain	49 pounds

Italy	47 pounds
Portugal	44 pounds

All the meat-eating countries are also meat producers, but only few of them produce more than their consumption, namely, the United States, Argentina, Australia, Canada, Denmark (bacon only), Mexico (under normal conditions), New Zealand and Uruguay.

The surplus of these countries is exported to those countries that do not produce enough for their own use. The former are termed surplus countries, and the latter deficiency countries.

Just prior to the war the general condition of the world's meat production was about as follows: Cattle production was stationary, that is, they were not increasing in number, sheep were materially decreasing and swine were increasing. This can be more strikingly illustrated when the number of food animals is computed on the basis of per capita of population. It is found that prior to the war cattle and sheep had not kept pace with the population, although swine had gained slightly.

Then the great catastrophe of August, 1914, was forced upon the world, and it was but natural that the number of meat animals should still further decrease, not only in the belligerent countries but also in some of the contiguous countries. However these losses have been more than offset by gains in other countries, so that both cattle and swine show a gain in numbers during the war. Only sheep have decreased. There has been a marked increase in the slaughter of food animals in all the belligerent countries, not only to meet the demands of the armies, but also because of lack of food for the animals.

According to the Department of Agriculture of France, there has been a reduction of meat animals from December, 1913, to July, 1915, in the territory unoccupied by the enemy amounting to 17 per cent in cattle, 16.8 per cent in sheep, 22.1 per cent in swine and 68 per cent in goats. The British Board of Agriculture estimates that during the year ending with June, 1915, there has been a slight decrease in the United Kingdom of cattle and swine.

All the belligerent European countries are meat deficiency countries, and when the war cut their supply they had to turn to the United States as their only hope to fill the ever-increasing needs for their armies and people at home.

The United States was for more than a quarter of a century the abattoir of the world and furnished the lion's share of the world's meat exports, but by 1914 it had ceased to be an exporter of fresh, chilled and frozen beef; in fact, it had begun to import fresh beef. It was still the greatest exporter of pork and pork products, furnishing three quarters of the total of the world's exports of those meats. Practically the total exports of mutton came from the Australasian colonies and Argentina.

Actuated by the stimulus of an increasing demand at enhanced prices, the American meat industry set itself to increase the supply of food animals, and when we entered the war in 1917 it became a duty and a privilege for the American stockman and the American packer to supply the needs of our government and of the Allies. The way they responded will ever remain one of the bright chapters in the history of the part the United States played in the war. A steady stream of cattle, sheep and hogs poured into the great packing centers and just as steadily did the flow of meat keep going across the Atlantic and into the great camps of this country, without hitch or interruption.

Exports of meat and meat products from this country have increased from

1,142,000,000 pounds in 1914 to 2,005,000,000 in 1917, almost 76 per cent.

When it is remembered that this task was accomplished with labor the scarcest in history and greatly reduced, unsettled transportation facilities, it becomes apparent that the American farmer, stockman and packer have rendered a great service to humanity.

Not only have meat exports increased but the actual number of cattle and hogs on the farms and ranches in this country have also increased. From January 1, 1915, to January 1, 1918, cattle have increased from 58,000,000 to 67,000,000, and hogs have increased from 65,000,000 to 71,000,000. Sheep have decreased from 50,000,000 to 49,000,000.

The price of meat has, of course, increased according to the law of supply and demand and the cost of feed, but not to as great an extent as other staples and war materials. While the price of live stock had increased 39.9 per cent from 1915 to 1917, the wholesale price of meat had only increased 20.7 per cent during the same period. This was made possible by the scientific and economic utilization of by-products by the great packing houses and the increase in value of these by-products.

Now that the war is over, all are speculating and prophesying as to what effect peace will have on the economic condition of the world. A great many divergent opinions have been expressed, but every one agrees on one thing, and that is, that for some time to come the United States will have to feed the greater part of Europe, particularly with pork and fats. The meat-hungry population, especially labor, will need meat in order that the great task of rebuilding the devastated countries can be accomplished, and what is equally important, meat and other foods are needed to stay the ravages of disease, especially tuberculosis, which, according to reports, began to appear in some of the belligerent countries during the latter part of the war.

Examination of live stock conditions in other producing countries seems to indicate that the United States will be depended on to produce a large share of the meat of the world.

The ways and means necessary to maintain the supply of meats in the United States adequately to meet the reasonably expected demands, may be divided into three classes:

1. Measures to maintain and increase the production of food animals.

2. Prevention of loss of food animals and of meats.

3. Conservation of meats and meat products.

As stated before, cattle and hogs have materially increased in number since the beginning of the war. In addition, the hogs marketed in 1918 were of greater average weight, showing that they were fed longer before being sent to market.

Fortunately hogs can be produced more rapidly than any other food animal, two litters per year being possible for the average sow. The hog is easily the most economical animal to feed.

The hog is also the most important animal from a dietetic standpoint, especially in a crisis like this, because of its great yield of fats, and this is confirmed by the fact that half of the export of pork products in the early part of the war was made up of lard.

The necessity for increasing the number of sheep is due to their wool as well as meat.

A great deal has been done since our entry in the war to encourage the raising of food animals.

The work may be said to have begun when the Secretary of Agriculture, on April 4, 1917, called a conference of agricultural representatives and officials of

the states, presidents of land-grant colleges and others for the purpose of discussing the food emergency. The first conference held in St. Louis was followed by a second in Berkeley. The whole food situation was thoroughly discussed and a campaign outlined, the essential features of which were incorporated in the Food Production and Food Control Acts, passed by Congress August 10, 1917, followed by the creation of the office of Food Administrator. The Food Production Act carried an appropriation of more than $11,000,000, a part of which was to be used for a campaign to increase live stock, prevent animal diseases and to urge the conservation of meat, the work to be under the control of the Department of Agriculture.

A strong educational campaign by means of literature, lectures and demonstrations was soon inaugurated in coöperation with state agricultural bodies, colleges, the agricultural press, live stock associations and other interested groups. Trained experts were sent to the various states to teach economical live stock production as well as raising of feedstuffs.

The peculiar adaptabilities of the various sections of the country for stock raising were studied and advantage taken of them. Stock were removed from sections where feed was scarce to where it was plentiful, and markets were provided.

The hygiene and sanitation of the farm and ranch are being taught the individual farmer and farmers' organizations.

Unquestionably all these undertakings and many others that have been carried on have been largely instrumental in bringing about the beneficial results accomplished.

Next in importance to live stock production is the prevention of losses of meats. Meats are lost in two ways: By the death of animals from disease and exposure on the farms and ranches and by the condemnation of carcasses and parts by the inspectors of the Federal Department of Agriculture.

It has been estimated that from 8,000,000 to 10,000,000 good animals die annually on the farms and ranches from disease and exposure. According to the reports of the Chief of the Bureau of Animal Industry, under whose control meat inspection is conducted, condemnations for disease of whole carcasses and parts of carcasses on post-mortem examination for the four years ending with 1917 were as follows: above 1,000,000 carcasses, and nearly 3,000,000 parts of carcasses.

It can readily be seen that these enormous losses constitute a serious drain on the meat supply and call for energetic repression measures.

Of course, some food animals will always die of disease or become diseased sufficiently to be condemned, but when we study these diseases we find that among animals as well as among people the diseases that cause the greatest mortality are largely preventable, namely, tuberculosis, hog cholera, contagious abortion and Texas fever.

Tuberculosis and hog cholera were the cause of approximately 80 per cent of the total condemnations, the remaining 20 per cent being divided among forty other causes. The inference afforded by these figures clearly is that tuberculosis and hog cholera are the two important diseases producing the greatest loss of meats through condemnation. They also cause a great loss in cattle and hogs by death on farms and ranches. Tuberculosis also causes indirect losses in cattle by diminishing fecundity, curtailing the milk supply and disturbing nutrition, thereby bringing about a decrease in weight.

The Federal Department of Agriculture long ago recognized the necessity of eradicating these diseases and instituted

effective measures through the Bureau of Animal Industry with gratifying results, notably in the reduction of 30 per cent in hog cholera since 1914.

Since the war the scope of this work has been materially broadened. Congress expressed its recognition of the importance of anti-tuberculosis work by appropriating $500,000 for the fiscal year (1918).

Great advances have been made in tick eradication and much territory previously closed to cattle raising may be released within a few years.

The primary function of meat inspection is, of course, to search for those meats that are not fit for human food and keep them from the market by destruction. That this is effectively accomplished can be seen from the great amount of meats that is annually condemned. It also constitutes an effective medium for the discovery of areas throughout the country containing diseased herds, thereby pointing the way for preventive work.

This information, however, is limited by the fact that the Federal Meat Inspection Law only applies to these establishments that engage in interstate meat business, which at present produce only slightly over 60 per cent of the meat of this country. The remaining 40 per cent is produced in establishments not conducting interstate business, which are, therefore, without federal inspection. Some states and municipalities have local meat inspection laws, but in many cases these are either inadequate or not well administered.

Unquestionably the animals slaughtered in these non-inspected establishments are affected in the same way as those killed under Federal Inspection. This state of affairs ought not to be allowed to continue, for two reasons: First, because the consumption of the non-inspected meats constitutes a menace to public health; and, second, because these non-inspected meats do not permit an opportunity to institute preventive measures. It is, therefore, imperative that laws, state and municipal, should be passed for the adequate inspection of all meats produced in establishments at present operating without inspection.

There is another way by which the problem may be attacked, especially with reference to tuberculosis in cattle, and that is by more thorough inspection and supervision of milk production than is done at present.

In the light of present-day opinion the only serious danger of infecting people with bovine tuberculosis is through milk. Nevertheless, no uniform laws for inspection of dairy herds and dairy products exist in this country. If uniform laws, state or municipal, or both, or possibly Federal, existed, requiring the testing of dairy herds for tuberculosis and the sanitary inspection of dairies, not only would the danger of bovine tuberculosis be materially lessened, but by discovering and eradicating the disease in dairy cows, 10 per cent of which are at present affected, it would be greatly lessened among beef cattle and hogs as well, thereby materially increasing the meat supply.

So far we have discussed possible ways and means for increasing meat production, and while that, of course, is the most important step in maintaining the supply, much may be accomplished by the consumer to conserve available meats.

We are all familiar with the excellent work of the Food Administrator and the splendid way the country responded to his appeal for reducing meat-eating when necessary.

It is not exaggerating to say that the American people have been too discriminating and often wasteful in the selection of their meats. Partly because of their palatability, and partly because

they permit of quick preparation the more expensive and limited cuts are greatly favored. The so-called cheaper cuts are rich in nutritive and tissue-building elements, and can be made just as palatable as the expensive portions, and ought to be more extensively used.

Another class of meat-foods not fully utilized in this country are the edible organs, although in Europe they have always been prepared and consumed in a variety of ways. The spleen is practically not eaten in this country, except in a few isolated foreign-born neighborhoods in some of the large cities, and there is no reason why it should not be.

According to recent work on the vitamine hypothesis all glandular organs are rich in vitamines, and who knows but that an occasional addition of organs such as the spleen to our dietary might be of great benefit. At any rate, everything points to the spleen as wholesome food of considerable nutritive value, and as the average spleen weighs about two pounds, its use would add many millions of pounds of meat food annually to our supply.

No class of meat-foods is more important than the fats, and their shortage has been most keenly felt during the war.

Immediately upon our entry into the war the Bureau of Animal Industry broadened the inspection regulations so as to save all possible animal fats for food, and the great packing houses improved and perfected their methods of manufacture in the same direction.

The vitamine hypothesis looks upon fats as something more than stored up heat and energy, and it has endowed them with substances, as yet unidentified, that promote growth and enable the tissues to recover from injury.

At first the class of vitamines called "fat-soluble A" was believed to be found in milk-fat and yolk of egg only, but now that they are known to exist also in beef and hog fat all these fats can be used interchangeably, thereby avoiding a scarcity in any one of them. The broader use of oleomargarines prepared with animal fats would tend to equalize the supply of both butter and oleomargarine.

Naturally, in a realization of a possible shortage of animal fats a search for substitutes was begun, and logically the vegetable fats suggested themselves.

The recent work of Holmes of the Department of Agriculture establishes the digestibility of most of the vegetable oils, thereby opening up a rich supply of fats.

So far as is known at present all of the vegetable oils do not contain vitamines. More experimental work is needed on this most interesting hypothesis.

At no time in the history of the development of the food industries have the advantages of cold storage been so forcibly brought out as during the war. Without cold storage plants, meat and other foods could not have been prepared in such enormous quantities in seasons of plenty and delivered fresh and wholesome to our armies and the Allies abroad.

Now that the war clouds have been dispersed and peace is here, far-sighted men are beginning to take stock of the benefits that can be expected as a result of our victory.

The most able students of the problem agree that great and lasting benefits will result to the human race, even though dearly bought.

Not the least among them will be a broader knowledge of foods, both by the public at large as well as the scientific world.

The war has taught us to get along with less food than we used heretofore, how to substitute one class for another in time of stringency, and how to conserve what we have.

REMARKS ON THE CONDUCT OF CENTRAL AND LOCAL GOVERNMENT AUTHORITIES IN ENGLAND

SIR ARTHUR NEWSHOLME.

Discussion before the Conference of State and Provincial Boards of Health, June 7, 1919, at Atlantic City, N. J.

In England a link has always existed between the central and the local health administrative bodies. This has been helpful in solving problems, standardizing methods, and stimulating local effort throughout the Kingdom. : : : : : : : : : : : :

I HAVE difficulty in accepting the flattering invitation to address you without previous notice because the subject of President Goodnow's lecture is complicated and difficult, and it would be presumptuous, if not actually indecorous, for me to attempt to say anything from an American standpoint. There is, however, an English standpoint on the same subject, and if English experience can be helpful, I am very glad to give you the benefit of that experience. One has, in the first instance, to bear in mind the difference between a "tight little island" like ours and a continent like America.

One difference strikes me, and it is this: From the earliest days of public health legislation and administration in England, there was the link between the central and the local organization. The earlier public health acts give the central authority the power of describing the duties of the local medical officer of health and that power has been utilized to relate and to prevent a lack of coöperation between the local and the central office. Every medical officer of health had, year by year, to write an annual report and that has had to be presented to the central authority. In the central bureau it has been conned and criticized, not so much as it ought to have been, perhaps; but on the strength of that report, letters have been sent to the local authority pointing out respects in which their administration has been weak, and suggesting this or that development or extension of activity, thereby gradually raising the standard of local health administration.

Not only does that apply to the annual reports, but we have also the central registration office, by means of which the local vital statistics can be checked; and in which further statistics for the same locality are prepared, so that the local can be checked against central information.

Furthermore, we have introduced in the last eight years a system under which the statement of the number of cases of each infectious disease notified in every locality is required to be sent by the medical officer of health on each Saturday to the central government office. On the following Wednesday, that statement has been summarized and printed for every one of the 1,800 districts into which England and Wales is divided; and this statement is circulated to every one of the 1,800 medical officers of health, so that every one of them knows whether smallpox, scarlet fever or diphtheria or any other notifiable disease is present in any other district in England or Wales. Those are some of the ways in which the central authority has been able to advance local public health administration.

They are not the only ways. The central authority from the beginning has been advised by men, my predecessors, who were statesmen in public health, including especially Sir John Simon, the founder of systematic public health administration in England, and his classical reports, I think, did more to advance public health than any reports which have been issued in any country in the world's history. He gathered around him a staff of medical inspectors which has been increased as time went on, and these inspectors have gone down to any locality where an epidemic has threatened or occurred to assist the local medical officer of health. In other areas the medical inspector of the central authority has gone down where administration has been lax, or where any special defect existed and

the printed and other reports following after these inspections have meant the castigation of local authorities not doing their duty or the praise of those doing well, and so gradually the standard of public health administration has been raised.

The central authority has not only thus acted as supervisor, but also as central authority for research. Some of the most important research work has been done by special government grants, which in recent years, under the national insurance act, have been greatly increased.

Another way in which England's position is relatively favorable for a proper relation between central and local authorities is this: Local authorities find it difficult or almost impossible to borrow large sums of money for sewerage, water supplies, housing, or even for a town hall, without the consent of the central government. The central government holds an inquiry before giving its consent, and its consent is subject to its belief in the justifiability of the expenditure proposed to be incurred, and to ascertaining that the local authority's total loans do not already exceed its ratable value. The applications are not frequently refused, but the power of refusal has been found to be of extreme value in dealing with recalcitrant and backward authorities. Sometimes the loan has been held up by the central authority, which can say in substance, "You will get the loan when you have mended your ways and brought your sanitary administration up to a fair level." The fact that the central authority is banker has undoubtedly had an important influence. I do not suggest that the Federal Government of the United States should be the banker for the states; I am only stating what is done in a compact country such as England.

Lately there has been an expansion of mandatory power. If the local authority refused to provide an adequate water supply or sewage disposal system, it has been practicable for many years for the central government to go in and build sewers or construct reservoirs, etc. They did it once or twice, but got into such difficulties that the experiment was not repeated. The general impression has been that these mandatory powers were not practicable and they have remained in abeyance. Recently, however, there has been a revival of them in connection with the control of venereal diseases.

The Royal Commission, of which I was a member, reported during the first year of the war and, as a result of this report and the action subsequently taken by the Central Board of which I was the medical advisor, it was made obligatory upon all the large local authorities (county borough councils and county councils) to provide free diagnosis and treatment for all patients coming to them who were suffering from venereal disease, whether they belonged in their area or not; and this free treatment is now given to any applicant in England or Wales whether he is a millionaire or pauper. This was made compulsory on local authorities and I have not heard of one authority which has refused to carry it out. Some are doing it better than others, of course. I don't know what would happen if any of the local authorities did refuse to do it. Probably a voluntary committee would be appointed and given the money to do the work instead of the local authority. The central government provides three-fourths of the total cost of the clinics, the other fourth coming from the local funds, and in such a case as that, the central government probably would pay the whole of the cost instead of trying to coerce the local authorities.

That is an interesting excursion into mandatory powers. My own view is that so far as the large local authorities are concerned, there should be little interference with them from the central bureau; certainly not by way of limitation of activities. The only interference should be in the way of stimulating them to do still better. Lately there has been a tendency to decline to give consent to local experimental extensions of public health administration. Such refusals in my opinion should cease. Local experimentation should be encouraged by every possible means and should receive support; and the best support, as President Goodnow has so well told us, is undoubtedly financial support. With financial support we are going ahead very effectively in England in new develop-

ments. Of course there is danger of too much centralization when central financial aid is given to local authorities. The grants given to local authorities depend, perhaps, too much on toeing a certain line, but in public health matters, particularly in child welfare and the promction of anti-tuberculosis campaigns, the practice of giving, as Dr. Goodnow explains to you, pound for pound, has spread very extensively. I cannot give you the sums on education, venereal disease and on tuberculosis—which are large—but so far as the child welfare and maternity activities are concerned, I may mention the figures, which may appear small to you, but remember the population of England. The special grants for child welfare work before the war amounted to some £22,000. In the last year of the war they amounted to more than one-quarter million sterling pounds, and that did not represent half the total local expenditure because a great deal of the local expenditures comes outside the particular items for which grants are payable.

At any rate, I am convinced, and I am glad to have the authority of the reader of the address this morning, in support, that the progress of the future will be on the lines of inducing the local authorities to do more than they have done in the past by aiding their finances, and I think that is the most hopeful line of development.

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FUTURE COÖPERATION BETWEEN THE AMERICAN RED CROSS AND PUBLIC HEALTH AGENCIES.

Livingston Farrand, M. D., LL. D.

President, American Red Cross, Washington, D. C.

Address before the Conference of State and Provincial Boards of Health, June 6 and 7, 1919, at Atlantic City, N. J.

Since the cessation of hostilities in Europe health officers have been asking "What is the Red Cross going to do in Public Health?" Dr. Farrand here assures the public health profession that the Red Cross proposes to be a coöperative agency and not unless circumstances seem to demand it, an operative one. : : : : : : : :

The President: The next paper on the program is the address by Dr. Farrand, as you all know, recently elected President of the American Red Cross. No words of introduction are necessary. We all know Dr. Farrand and love him. I present Dr. Farrand.

I FOUND myself in a good deal of embarrassment when I was asked to come here to discuss the future of the American Red Cross, and particularly its work in public health and its coördination with the various public health administrators and activities of the country. I was embarrassed for the reason that the Red Cross is, of course, at this moment in process of working out these plans, and what it is looking for is advice, not for an opportunity to state certain things.

What I would much prefer to do here this morning would be to ask advice from you as to what the Red Cross may safely and legitimately do in the public health campaign and the public health activities of the United States. The chief situation confronting the Red Cross is this: There has been built up during the war, by reason of the war, but existing after the war, an enormous voluntary organization, an organization of many million people attached to a name and a symbol, the Red Cross, organized for a specific purpose or rather a variety of specialized purposes during the war and now looking out to see how that energy which has been accumulated can be directed toward useful ends in the future.

It was expected, I think, by nearly everybody who had any responsibility with the Red Cross that after the war it should concern itself with the fundamental problem of human welfare in times of peace, namely: public health and the prevention of disease. That seems to be expected by everyone as the ab-

solute basis of any progress we are to make. Now I think it is accepted by everyone that the care of the public health and the prevention of disease is in the last analysis a public and an official responsibility; that is, that no private organization, no philanthropic society of any sort, should regard itself as being charged with the ultimate responsibility in this field; but we all know that the official responsibility which rests upon public health officials, which rests upon you gentlemen here, cannot be discharged adequately unless you have educated and trained public opinion to support you.

Now we have learned in many years of private and public health work in this country that these private organizations—child welfare, tuberculosis societies, or whatever else they may be—if they are wisely conducted can do a great deal towards educating public opinion and towards providing the resources that the public health officials of the country need, in order to carry through the measures which they know should be enforced and administered.

As we begin to look over the field here in the United States, we see organized, operating and effectively operating, a very considerable number of private organizations, tuberculosis organizations, child welfare societies, and others. It seemed to us as an axiom that it would be folly for the Red Cross, because of its great strength in numbers and, possibly, financially, to attempt in any way to absorb these independent movements that have grown up in past years. On the other hand we felt that we might be extremely useful in doing what we legitimately could to coördinate these movements which have been growing up, and which, having been acting independently, sometimes had been unconsciously overlapping to a certain extent, although not so much as one might suppose at first thought. More than that, we could see at once that we might be of enormous assistance by providing quickly and effectively a very large opportunity on the educational side for the public health officials of the country. After all, as everyone knows, the public health campaign rests in the last instance upon the education of the people.

The Red Cross believes that, with its membership, at the present moment about 17,000,000 in the country, with chapters organized in every part of the United States, with machinery organized to reach them quickly and effectively, it can afford you a public quickly reached for the transmission of authoritative information which will ultimately lead to a much more effective health administration than we find at the present moment. We also have a certain advantage in being an organization with certain semi-official attachments to the United States government. While we are not a governmental body, we have points of contact with the national government and yet have absolute freedom in activity and development. We are, therefore, able to do certain things which the Public Health Service, for example, cannot readily do. We can do certain things in our states which even the state officials cannot do, and we can do things in local communities which the local officials cannot do. So that at this moment we are conceiving ourselves as a great potential, coöperating and coördinating body in the field of public health, without any idea whatever of attempting to assume the responsibility of administering or operating directly the various phases of public health activity.

In other words, we are trying to stand behind you, the health officials of this country, and the trustees of every legitimate private public health organization existing in the country, with the idea of strengthening every one of these movements and of filling in, I might say, the chinks in the field not now covered until other adequate agencies, official or private, are ready to conduct these particular activities themselves. At the present moment we see ourselves as charged with the necessity of stepping into the field actively in one or two lines.

For example, I think you will all agree that in developing a broad public health program in the United States, one of our greatest deficiencies at the moment is the provision for public health nursing and visiting nursing. We feel we can at this moment increase rapidly and largely the number of trained public health nurses; that we will for the time finance a largely increased number of public health nurses, always, as I said, looking towards the

time when this and other phases of public health activity will be assumed by the public health authorities. And, therefore, we wish to lay out our plans in such a way that this activity is always carried out in coördination with the plans of the public health officials, and ready to be modified and turned over to them as soon as they are in a position to accept it.

One other point I wish to make perfectly clear. I have come into touch in the last few weeks with a certain note of apprehension in various parts of the country as to what the Red Cross was going to try to do. I have been conscious of a feeling on the part of a great many that this great organization, with immense power as it has by reason of its numbers and its prestige, might run amuck in this and other fields; that it might attempt to assume this and that function. Now I assure you that is exactly the thing we do not want to do. We realize that during the war, as every one else realizes, it was necessary that the Red Cross, like the Army, like any other activity mobilized for war purposes, had to be conducted in a more or less autocratic way; that local chapters required absolute direction from a central authority in Washington, and to get results quickly specific directions had to be given and had to be obeyed, whether the chapters or local divisions agreed with them or not. Now the war is over, and we see perfectly clearly that there must be so far as possible a complete reversal in the point of view. In other words, in times of peace the Red Cross must be managed as far as possible on a democratic basis. We must turn the authority and the initiative just so far as possible from the central body at Washington to the local chapters, realizing that the problem in every section and locality of the country varies. Therefore, the right of determining the form of action of the Red Cross must be largely left to these local bodies, the states and chapters.

The National Red Cross must, of course, reserve to itself the laying down of certain broad principles of action, of pointing out the fields in which it is legitimate for an organization bearing the Red Cross name to operate, and of saying that there are certain kinds of things the Red Cross cannot do. It will be left very largely to the local chapters of the Red Cross to determine what they shall do in detail.

This is the condition we are now in. I think I, and a good many of my colleagues, have our personal ideas somewhat more defined. I can begin to see fairly clearly how we can be of great service in the whole field of child welfare, but I do not see it as absorbing the whole child welfare program. We can be of use in the tuberculosis problem. I can see how we can be of great use to the representatives of the Federal and state health departments, particularly in affording a large public.

At this moment what we wish from the members of the Association is to be told what you think we can do, for we are potentially very powerful, to help you. I can only tell you confidentially that, while we shall, of course, reserve the right to determine whether or not what you ask can be done, I do not think we will determine to do anything which you agree cannot, or should not, be done.

The President: On behalf of the Conference the chair recognizes very gratefully this illuminating and reassuring statement of the purposes and plans of the Red Cross. I have been one of those, of whom there have been many, who have looked with some apprehension on the reported plans of the Red Cross. It is perfectly evident that any program affecting public health in the United States can be adopted successfully only after a careful consideration of local needs. Massachusetts and Montana, Ohio and California and Mexico are so far apart in climate, population, health conditions and everything affecting the problem that it is absolutely necessary that any program of public health which is to concern the whole of the United States be carefully considered with a very careful view of local conditions.

Dr. A. W. Freeman, *Ohio:* I think therefore, Mr. Chairman, that the logical thing for us to do in this emergency is to utilize the new machinery which we have today created in the Executive Committee. I move you that, instead of attempting to work out details of this program with Dr. Farrand at this time, the Executive Committee of the Conference be authorized and directed to arrange with Dr. Farrand for a conference to work out a complete plan of coöperation between state health organizations and the Red Cross for its new program of public health work, and that the Executive Committee be authorized to act for the Conference in this matter. (Seconded and carried.)

PROPER RELATION OF FEDERAL AND STATE GOVERNMENTS IN PUBLIC HEALTH WORK.

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Assistant Surgeon-General, United States Public Health Service, Washington, D. C.

Read before the Conference of State and Provincial Boards of Health, June 7, 1919, at Atlantic City, N. J.

How far should the Federal Government go in dictating state health policy? Dr. McLaughlin says that it should coördinate state departments just as these coördinate the departments of cities. "The United States Public Health Service," he says, "has a detailed, comprehensive nation-wide program for every public health problem, but these programs can not be put into effect without adequate funds."

THE ideal relation between Federal and state governments in public health work should be such as to insure the covering of the entire field of public health between them. All gaps should be covered by one or the other jurisdiction, and in twilight zones there should be the most complete understanding of a frank policy which would preclude overlapping, duplication or conflict.

If, under such a policy, the Federal Public Health Service did work which the state should do but was unable to do, the Federal Health Service would be acting presumably under its authority to assist states, and its activities should not continue beyond the time when the state officials were able and willing to take over the work.

In order to consider the proper relation between Federal and state public health agencies, it is necessary to review briefly the powers and functions of the United States Public Health Service and the authority therefor.

The functions of the United States Public Health Service may be considered under the following heads:

1. Police.
2. Investigative.
3. Demonstrative.
4. Coördinative.

POLICE POWER.

Police power has been given very sparingly to Federal health authorities and delegated by states in large measure to local authorities because the ultimate application of police power to the individual citizen logically belongs to the agency with which he is in direct contact, viz., the local board of health.

It is clear that police power not specifically given by the Constitution to Federal agencies is reserved to the states or to the people. There is also police power implied but not expressed in the Constitution inherent in the Federal government in connection with the general welfare and interstate commerce clauses. This power is necessary to cover conditions not amenable to or corrigible by state police power and its exercise cannot be a usurpation of state authority.

Congress has repeatedly given police power by statute to Federal agencies to cover such conditions but has always maintained the attitude that in health matters the State and local agencies should be utilized to the limit of their legitimate fields.

The Quarantine Law of 1890 gives very definite powers to the Federal health authorities to prevent the introduction of cholera, yellow fever, smallpox or plague from one state to another without reference to utilization of state machinery, and provides for the promulgation of rules and regulations with penalties for infraction thereof.

The Quarantine Law of 1893, which includes all communicable diseases, provides that the Public Health Service shall coöperate and aid state and municipal health boards in the execution and enforcement of state laws and regulations and of Federal laws and regulations. It provides that where no state or local regulations exist or where these are insufficient, the Secretary of the Treasury shall make such additional rules and regulations as

are necessary to prevent interstate spread of such diseases.

It provides, further, that the rules and regulations promulgated by the Secretary shall be enforced by state and local authorities where they will undertake to execute and enforce them, but if state or municipal health authorities fail or refuse to enforce said rules and regulations, the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary.

In order to carry out this policy of utilizing state and local health machinery in the prevention of the spread of disease, Congress has repeatedly appropriated large sums "to aid state or local boards or otherwise in preventing and suppressing communicable disease" (Epidemic Fund).

Congress annually appropriates for the Interstate Quarantine Service sums of money from $15,000 to $1,500,000 for coöperation with state and municipal health authorities in the prevention of the spread of disease in interstate traffic.

The question of delimiting the police owners of Federal and state authorities is an academic one—and for practical purposes satisfactory results can be secured in most sections by utilizing state power alone coördinated by the Federal Health Service in a national program.

As the state health machinery becomes more highly organized and perfected, the need of exercise of Federal police power will diminish and the need of Federal coördinative activity will increase.

The prevention of the spread of epidemic disease from one state to another, may be handled in one of two ways:

1. By the present system of awaiting the outbreak of an epidemic and then attempting its suppression.

2. By maintaining such a close check upon disease prevalence that prompt and early information of undue prevalence is at once available, and suppressive measures taken before actual epidemic proportions are reached.

It is manifest, therefore, that the policy of the United States Public Health Service should be to develop state health departments and especially those divisions in a state health department whose effective operation in the interest of the state itself tends to prevent the spread of disease from one state to another.

The most effective means of preventing interstate spread of disease at the disposal of the Federal government today lies in the development and utilization in every state department of health of strong divisions for control of communicable diseases, water and sewage.

To develop these divisions and bring them to a standard of uniform excellence it is necessary to detail trained men from the Public Health Service to assist the state health officers. In many states these divisions (usually called divisions of communicable disease and divisions of sanitary engineering) do not exist or exist in name only. In states which possess such divisions plain justice suggests that the Federal government should render some assistance in doing work which is called for by Federal law and regulation.

Investigative Functions.

The investigative function of the Public Health Service has no limit other than the amount of money which may be appropriated by Congress.

The Act of 1912 authorized the service to study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage, and the pollution directly or indirectly of the navigable streams and lakes of the United States.

Under this very broad authority, investigation of any phase of public health work may be undertaken. The act further provides for the publication of information for the use of the public.

Sufficient funds should be secured from Congress to undertake and carry on such research as is necessary in order to furnish to the health officer in the field diagnostic, prophylactic and curative weapons for the suppression of communicable disease.

The economic advantage of doing this in one hygienic laboratory rather than in forty-eight is at once apparent.

Demonstrative Functions.

The work done under the investigative authority of the Act of 1912, especially the

field work, is nearly always demonstrative and can be utilized as public health demonstrations of all kinds.

In addition Congress has given specific authority for demonstrations in rural sanitation contingent upon partial support by state or local agencies.

Nothing compares in effectiveness with an actual demonstration of how work should be done in the individual communities. Here again the United States Public Health Service is limited only by the amount of money appropriated by Congress.

Coördinative Functions.

The coördinative function of the Public Health Service in achieving national success against any public health problem is perhaps the most important function which the service exercises. Some Federal coördinating agency is necessary in order to secure a synchronous attack upon any disease, with uniformity of method over the entire area of the United States. To secure the maximum of improvement in our national health we must have nation wide programs for each problem with which health officers are confronted.

The example of our Venereal Disease Campaign serves to show what may be accomplished in other fields by the same methods.

The coördinative function of the Federal Public Health Service is but the national demonstration of what is exercised by state and local health authorities over smaller areas.

In other words, public health organization —Federal, state and local—should have the following relationship:

Supervisory and Coördinating authority	*Working units to be coördinated*
U. S. Public Health Service	State Departments of Health
State Department of Health	Local Health Departments
Local Health Departments	Individual Citizens

The coördinating and supervisory authority furnishes the program in order to secure team work and endeavors to have this program carried out by all the units in the area within its jurisdiction.

The Public Health Service has a detailed, comprehensive, nation-wide program for every public health problem, but these programs cannot be put into effect without adequate funds.

I hope I have made it clear that the only need of the Public Health Service is sufficient money to carry out its programs.

The service now possesses all the authority and function which can be given by Congress to a Federal Health Agency within the limits of the Constitution.

Public Health work aims at the eradication of preventable disease, the elimination of corrigible, physical and mental defects, and the maintenance of all individuals in the best possible physical and mental condition.

To achieve such aims demands a partnership with an exhibition of most perfect teamwork by Federal, state and local officers. I have already mentioned such a partnership in the Venereal Disease Campaign. The proposed Lever Bill for rural hygiene provides if anything, a better example of what such a partnership should be.

There is ample precedent for this type of Federal coöperation with state and local authorities as Congress has passed similar legislation covering good roads, vocational education and farm demonstration work.

Let us waste no time in a futile effort to delimit accurately the police power and authority of each of these three jurisdictions, but let us leave such discussion to the academicians. As practical men let us disregard the theoretical boundaries of varying police jurisdictions and attack each health problem by joint concerted action according to a nation-wide program, remembering that the spread of disease recognizes no boundaries—local state or Federal.

"Count me in for New Orleans, if I've got a leg left to stand on,"
This is what an enthusiastic member has written the Secretary.
Why not meet him there October 27–30, and make the Forty-Seventh Annual Meeting of the A. P. H. A. a record breaker!!

PRESENT STATUS OF PNEUMOCOCCUS VACCINE.

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Army Medical School, Washington, D. C.

Read before the Conference of State and Provincial Boards of Health, June 7, 1919, at Atlantic City, N. J.

Out of 13,460 soldiers at Camp Wheeler who were vaccinated with pneumococcus lipovaccine less than one in one hundred was sick enough for the hospital. The camp pneumonia rate for unvaccinated soldiers was five times (crude) or twenty times (corrected) that for vaccinated. Civil life has important uses for such vaccination.

THE great prevalence of typhoid fever in the Spanish-American War served to stimulate interest in the subject of prophylactic vaccination against this disease, and lead finally to the perfection of typhoid vaccine by Colonel Russell, and its compulsory administration in the American army. The value of typhoid vaccine has been thoroughly established during the present war, as is indicated by the very low incidence of this disease among the American troops.

It is natural, therefore, that the great prevalence of pneumonia during the present war served to stimulate interest in the subject of pneumococcus vaccination. There was already some evidence that pneumonia could be prevented by the use of pneumococcus vaccine, for Lister in South Africa had undertaken prophylactic inoculation of large groups of miners against pneumonia, and had reported excellent results. Lister had previously classified the pneumococci which he had encountered in South Africa, and, finding that there are three types which cause most of the pneumonia, he combined these into a vaccine. They were known as types A, B and C; types B and C corresponding to our types II and I respectively; type A has not been encountered in America.

During the winter of 1917–18, I was stationed in the Base Hospital at Camp Upton. Pneumonia began to be prevalent in December and was practically all of pneumococcus origin. It seemed an opportune time to undertake some experiments with a pneumococcus vaccine, and, after consultation with Dr. Rufus Cole of the Rockefeller Institute, it was decided to prepare a vaccine, type I, II and III pneumococcus, in approximately equal parts, and to inoculate about 50 per cent of the camp with this vaccine. Major J. H. Austin of the Rockefeller Institute, prepared the vaccine and carried out some preliminary protection tests on mice which demonstrated that a certain amount of immune substance could be stimulated by the subcutaneous injection of pneumococcus vaccine. Twelve thousand five hundred and nineteen men were vaccinated at Camp Upton (about 40 per cent of the camp strength), most of the men receiving three or four inoculations at intervals of five to seven days. The total dosage was 6 to 9 billion of types I and II, and $4\frac{1}{2}$ to 6 billion of type III. The local and general reactions were usually mild, but there were quite a few small, sterile, infiltrations at the site of the injection which appeared to be an expression of pneumococcus susceptibility.

The results of the vaccination were highly satisfactory. The men were under observation for ten weeks following vaccination, and, during that time no cases of pneumonia of the three fixed types occurred among the men who had received two or more injections of vaccine. In a control of approximately 20,000 men, there were 26 cases of pneumonia of types I, II and III during the same period. The incidence of pneumococcus type IV and streptococcus pneumonia was much less among the vaccinated troops than among the unvaccinated troops. The final figures showed only 17 cases of pneumonia of all types occurring among 12,519 men who received vaccine; whereas, among unvaccinated troops during the same period there was a total of 173 cases of pneumonia of all types. For the ten weeks during which the

men were under observation, the pneumonia death-rate for vaccinated troops was only 0.83 per thousand; for the unvaccinated it was 12.8.

In spite of the successful results obtained at Camp Upton, there was certain objection to pneumococcus vaccine which interfered somewhat with its extensive use. In the first place, three injections were necessary in order to obtain a satisfactory immunity, and this for obvious reasons was burdensome to the regimental surgeons and to the men themselves, who had already received typhoid and smallpox vaccine. Another objection to pneumococcus vaccine was the occurrence of small sterile infiltrations which sometimes followed its use.

The result of this experiment, however, was so promising that the Surgeon-General appointed a special commission to make further investigation as to the value of pneumococcus vaccine, and this commission was directed to proceed to Camp Wheeler, Georgia, for the purpose of instituting voluntary vaccination among the troops. The commission originally consisted of Capt. Henry F. Vaughan and myself; later however, a number of other assistants were sent to help us. Camp Wheeler was selected for this second experiment for the reason that pneumonia had been particularly prevalent in that camp.

In this experiment we decided to substitute a pneumococcus lipovaccine for the saline vaccine which we had used at Camp Upton. This vaccine was prepared for us by Col. E. R. Whitmore of the Army Medical School, and the dose finally adopted after some preliminary experiments was 30 billion pneumococci (10 billion of each of the fixed types in one cc. of oil). Upon our arrival at Camp Wheeler we found that the pneumonia which was occurring among the troops there was practically all of the lobar type and of pneumococcus origin. Nearly half of the pneumonia, moreover, was being caused by the types of pneumococci against which we proposed to vaccinate.

It soon became apparent, however, that conditions at Camp Wheeler were very different from those which had prevailed at Camp Upton the preceding winter. In the first place, many of the men whom we were to vaccinate at Camp Wheeler were raw recruits of rural origin, a considerable part of them being Negroes. The men vaccinated at Camp Upton had come chiefly from New York City, were well seasoned at the time of vaccination and were mostly of the white race. The situation at Camp Wheeler was further complicated by the arrival of the influenza epidemic, which arrived shortly after we began vaccinating the men.

Altogether 13,460 men, or about 80 per cent of the entire strength of Camp Wheeler, were vaccinated against pneumonia with pneumococcus lipovaccine. Both the local and general reactions produced by the vaccine were mild. Only .7 per cent of those who received the vaccine were sufficiently affected to receive hospital care. None of these were seriously ill and a majority of them returned to duty in two or three days after admission. The troops inoculated were under observation from two to three months after vaccination. During this period there were 32 cases of pneumonia, types I, II and III pneumococcus among the vaccinated, four fifths of the camp; and 42 cases of these types among the unvaccinated, or one fifth of the camp. If, however, all cases of pneumonia that developed one week after vaccination are excluded from the vaccinated group, there remain only 8 cases of pneumonia produced by the fixed types and these were all secondary to severe attacks of influenza. This exclusion is justified by the fact that protective bodies do not begin to appear in the serum until the eighth day after injection of pneumococcus lipovaccine.

The weekly incidence rate for pneumonia among the vaccinated troops was conspicuously lower than among the unvaccinated troops, and the incidence rate during the period of the experiment was twice as high for unvaccinated recruits as for vaccinated recruits, and nearly seven times as high for unvaccinated seasoned men as for vaccinated seasoned men. It was found that the influenza caused a marked reduction in the resistance to pneumonia even in unvaccinated men. Of the 155 cases of pneumonia developing one week or more after vaccination, 133 were secondary to influenza.

The death-rate for 155 cases of pneumonia that developed among vaccinated men one week or more after vaccination was only 12.2 per cent; whereas, the death-rate of 327 cases of all types that occurred among unvaccinated troops was 22.3 per cent. The death-rate for primary pneumonia among vaccinated troops was 11.9; among unvaccinated troops, 31.8, almost three times as great.

It must be admitted that the results of pneumococcus vaccine at Camp Wheeler were not so striking as those obtained at Camp Upton in 1918, largely on account of the influenza epidemic; but, although the influenza obscured to some extent the effect of pneumococcus vaccine at Camp Wheeler, we found that the results were sufficiently encouraging to justify its further use.

It will be observed that all investigations which have been done up to the present time, in respect to pneumococcus vaccination, have been based upon statistical evidence. After completion of the work at Camp Wheeler it seemed very desirable that experimental studies should be undertaken on animals as to the value of pneumococcus vaccine. It happens that the monkey is highly susceptible to pneumonia, and we were fortunate in being able to secure a considerable number of these animals for such an investigation at the Army Medical School at Washington. Capt. Francis G. Blake collaborated with me in this study, and the results of our investigations will be reported at the Atlantic City meeting.

These experimental studies which Captain Blake and I are now conducting, taken in conjunction with experiments which have been carried out in camps, afford a rational basis for the use of pneumococcus vaccine. With the cessation of the war the question naturally arises, "How much use can be made of pneumococcus vaccine in civil life?" Vital statistics now show that pneumonia claims more people in the United States than any other infectious disease, and the rate seems to be increasing slowly each year. Furthermore, a majority of the pneumonia seen in adults is of the primary lobar type which is the type of pneumonia most amenable to prophylactic vaccine. Pneumonia, like tuberculosis, attacks most of its victims in the prime of life, at the time when they are most useful to society. Sanitary measures will, of course, do a great deal toward limiting the ravages of pneumonia, but hygienic precautions against pneumonia are hard to enforce.

Typhoid fever is rapidly being eliminated from civilian communities by means of improved sanitation and pure water and milk supplies. Indeed, the time will no doubt soon come when there will be little if any need for prophylactic vaccination against typhoid fever, except in army life.

With pneumonia the case is different; pneumococcus is widely distributed, especially during the winter and spring when colds and coughs are prevalent. This very fact puts any sort of vaccination against pneumonia to a very crucial test. Typhoid fever is a primary infection; the typhoid bacillus rarely finds its way into the alimentary canal of healthy men. The pneumococcus, on the contrary, is frequently found in a healthy man, and the host, therefore, is constantly exposed to infection at some moment when his resistance is at a low ebb. Moreover, pneumonia in most of the camps at least has been largely a secondary infection, overtaking the patient when the natural resistance has been lowered to such a degree that pulmonary infections of some kind are almost unavoidable. In cases of this kind the problem is to reduce the chances of the patient becoming infected with a highly virulent organism, so that if pneumonia does develop the disease will run a mild course.

What are the present limitations to pneumococcus vaccination?

First: One of the chief difficulties which we encounter in fighting against pneumonia is the variety of types of pneumonia which are encountered. Even if streptococcus, influenza and other rare forms are eliminated for the reason that they are not often seen in civil life, the pneumococcus itself occurs in such a variety of types that it is difficult to prepare a vaccine capable of protecting against all of them. If type IV pneumococcus were a fixed type similar to types I, II and III, this difficulty could be obviated. But type IV pneumococcus is simply a name given to a large group of pneumococci which appear to be

entirely independent of each other and which give no mutual protection. It is probable that when a very high degree of active immunity is produced, such as that following an actual attack of pneumonia, a certain amount of cross protection exists between the various types of pneumococcus. Pneumococcus vaccine, however, produces at best only a moderate degree of protection and probably affords very little cross immunity. It is fairly well established that the larger the dose of vaccine, the more efficient the protection inferred. It is quite possible to give a dose of vaccine containing three or four types of pneumococcus, and to give it in sufficiently large dosage to give good protection; but, in order to obtain any kind of protection against the type IV group of pneumonias, a type by the way which was exceedingly common during the influenza epidemic, it will be necessary to introduce a number of different type IV's, and this would make the dose of vaccine too large for practical purposes.

Second: Pneumonia rarely occurs as an epidemic scourge like smallpox so there would be difficulty in having vaccination against pneumonia made compulsory. People do not fear the disease and are, therefore, unwilling to submit to the inconvenience of being vaccinated. Unless vaccination against pneumonia is practically compulsory, it will be very difficult to get a large number of candidates in civilian communities.

Third: The occasional occurrence of severe local and constitutional reactions is another objection to pneumococcus vaccine at the present time. At Camp Wheeler there were about 100 admissions to the hospital following the vaccination of nearly 14,000 men. None of these men were severely ill, most of them complaining of fever, headache and backache. A good many of those who did not suffer from constitutional reactions were annoyed by severe local reactions, and occasionally a sterile abscess would appear and cause the patient some alarm. The great need at the present time is for a detoxicated vaccine. Considerable work has already been done along this line. Gay and Besredka and others have made claims for sensitized vaccines; others have thought that the road to success lay along the lines of split proteins; more recently claims have been made for lipoids. There still remains, however, a great deal to be done along this line.

Present Indications for Pneumococcus Vaccine.

The most important field for pneumococcus vaccine at the present time is in military organizations. The sudden transition in the life of a recruit from the comforts of home to the hardships and experiences of camp life inevitably lead to a high incidence of pneumonia in every military organization, but especially in the training camps. Pneumococcus vaccine should play an important part in the prophylaxis against pneumonia in army life. It was unfortunate that wider use was not made of pneumococcus vaccine before the influenza epidemic.

Second: In large institutions, such as insane asylums and orphanages, etc., the use of pneumococcus vaccine would unquestionably lower the incidence rate of pneumonia, which, in some of these institutions is quite high. An experiment is being carried out at the present time by the United States Public Health Service in the insane asylums of New York State, which should give some very interesting results.

Third: There are certain groups in our large cities which should be vaccinated against pneumonia; firemen and policemen, for instance, are being constantly exposed to cold and wet, and there are certain classes of industrial workers such as miners, stone-cutters, etc., who should be vaccinated.

Fourth: Epidemics of pneumonia occasionally occur in civilian life and pneumococcus vaccine could be used with much benefit at such times.

Fifth: There are certain people who are very susceptible to pneumonia and suffer from repeated attacks of the disease. It is probable that such individuals are infected with a different type of pneumococcus in each instance. If these patients were vaccinated perhaps once a year with a polyvalent pneumococcus vaccine, it is highly probable that further attacks could be prevented.

USE OF ANAËROBIC CULTURE METHODS IN THE STUDY OF INFLUENZA.*

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In the search for the cause of such an important a disease as influenza, negative evidence with anaërobic cultures is of distinct scientific value. Professor Norton here presents conclusions derived from a careful series of investigations. : : : : : : : : :

THIS report is of negative findings made during February and March of 1919, long after the height of the influenza epidemic, but on such cases as appeared to be similar to those occurring during the fall of 1918.

The methods used were in general those of Noguchi (1) and of Plotz (2).

Media.—Five media were used for anaërobic cultivation. The solid media had as a basis meat infusion peptone (2 per cent), salt agar (1 per cent) made neutral to phenolphthalein before sterilization. This gives a P_H value of 8.0 to 8.3 after sterilizing. (1) Ascitic fluid collected asceptically. This was used chiefly for the experiments on blood. (2) Ascitic fluid agar made by adding one part of the fluid to two parts of 0.5 per cent glucose agar. (3) Hiss serum water made by adding one part of beef serum to three parts of distilled water and sterilizing in the Arnold. (4) Serum water glucose agar. Various proportions of the ingredients were tried varying from one part of serum water with ten of agar to ten parts of serum water with one of agar. They all gave the same results, so that one part of serum water with four of the glucose agar was used as these proportions gave a medium fairly rich in serum but sufficiently solid to handle easily. Sterilization was effected in the Arnold. (5) Heated blood agar prepared by adding 5 per cent of sheep blood to the nutrient agar at 95° C. This medium proved to be an excellent one for growing anaërobes as was shown by controls with pure cultures, and was particularly useful for plate work. In addition to these five media aërobic controls were made on unheated blood agar.

Methods.—Media in flasks (used principally in blood work) were covered with a layer of sterile paraffin oil. Liquid tubed media were treated in the same way and then placed in anaërobic jars. Stab cultures were made in tubes in solid media containing serum water or ascitic fluid. The cotton plug was then pushed in, pyrogallic acid and sodium hydroxide placed on it and the tube closed with a paraffined stopper. Smears on plates were made in the usual manner. All tubed media and all plates were placed in an anaërobic jar. This consisted of a jar 12 inches high and 6½ inches in diameter set on a ground glass plate and with two openings, one at the top and the other near the bottom. The air in the jar was displaced by purified hydrogen from a Kipp generator, and the pressure then slightly reduced by attaching to a vacuum pump in order to hold the jar securely to the glass plate. Usually a beaker containing sodium pyrogallate was placed inside the jar. The incubation temperature was 37° C. Controls with known strict anaërobes and strict aërobes were made.

*Influenza Investigations, United States Public Health Service.

Examination of Sputum.—Eighteen samples of sputum from influenza patients, all but three uncomplicated with pneumonia, were cultured on ascitic agar, serum agar, heated blood agar and unheated blood agar. The first three media were incubated anaërobically and the last one aërobically. After twenty-four hours some of the growth from each anaërobic tube was smeared on both heated and unheated blood agar plates and incubated respectively under anaërobic and aërobic conditions. Colonies were picked from these plates and replated when necessary. The organisms obtained in the anaërobic cultivation were paralleled by those found on the aërobic plates. No strict anaërobes were found. Organisms belonging to the M. catarrhalis group grew more luxuriantly than the gram positive cocci under anaërobic conditions, and also better than on aërobic plates.

Tonsils and Nasopharynx.—Material was obtained from the tonsils and nasopharynx from a few cases of influenza and submitted to the same examination as described for sputum. The results were no different from those obtained with the latter. No strict anaërobes were encountered.

Blood.—Blood from ten hospital patients was examined. It seemed desirable to get material as early as possible in the disease. Most of the cases had been admitted within twenty-four hours. In no case was the time more than four days. Ten cc. of blood was withdrawn from the median basilic vein of the arm, 5 cc. immediately added to a flask containing 100 cc. of sterile serum water and 5 cc. to 100 cc. of ascitic fluid. The material in the flasks was then covered with a layer of sterile paraffin oil and incubated. At the end of four days a loopful was removed from each of the flasks and streaked on both heated and unheated blood agar plates, the former being incubated anaërobically and the latter aërobically. These were examined after twenty-four and forty-eight hours in the same manner as were the plates from the sputum cultures. A second examination of the original flasks was made after two weeks incubation. Here also no strict anaërobes were found. No growth was obtained in any of the ascitic fluid flasks. Gram positive diplococci (facultative anaërobes) were obtained in two instances from the serum water medium and small unidentified Gram negative cocci (also facultative anaërobes) in two other cases. No organisms were isolated after fourteen days which had not been present at the time of the four-day examination.

Summary.—Anaërobic examination of sputum, material from tonsils and nasopharynx and of blood has failed to yield any evidence that strict anaërobic organisms are concerned in influenza.

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NATURE OF THE TOXIC AGENT IN "MEAT POISONING."

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This is only a report of progress, negative in parts, in a very elusive matter. Ptomaines are not responsible; microörganisms only partly so. Further investigation is suggested along the lines of a search for possible heat-labile toxins. : : : : : : :

THE experiments to be reported in this paper were performed with a view to obtaining some information as to the nature of the substances responsible for the symptoms of "meat poisoning." It was hoped that the information so gained might help to prevent the occurrence of such poisoning in the armies of the United States. The results were negative but it is believed that the results help to indicate the direction which future investigation should take.

The term "meat poisoning" may be applied to cases of poisoning due to the accidental or intentional addition to the meat of inorganic or organic poisons (metallic salts, alkaloids, etc), to the use for food of species whose flesh is toxic to man, to the use of the flesh of animals which have fed on certain substances which are toxic to man, or to the reaction produced in a few individuals by the ingestion of a substance harmless to all save these few. But it is generally restricted to the symptoms following the ingestion of a flesh food, ordinarily considered as wholesome. If several persons partake of the meat, all, or nearly all, are made ill and suffer similar symptoms.

In the light of our present knowledge, such a change from the usually wholesome character of the meat is due to microörganisms, probably bacteria. The suspected material is not always available but the mass of evidence indicates that that this is the case (1, 2). These organisms may infect the meat during storage, during its preparation for food or be present in the meat at the time of slaughter. The latter seems to occur only in animals that are quite sick at the time of slaughter (2). The stage of decomposition appears to have comparatively little to do with toxicity. Badly decomposed meat (venison, game birds) is eaten, by preference, by large numbers of people. On the other hand, meat of perfectly fresh appearance, taste, and odor, but infected with a virulent strain, may cause serious illness and death.

The symptoms observed divide the cases into two classes. In one group, loss of gastric motility, constipation, disturbance of vision, dizziness and muscular weakness predominates. They appear slowly and persist for a long time. The other is characterized by nausea, vomiting and diarrhœa and fever. The symptoms appear rapidly and recovery is equally rapid, though severe cases may be persistent. Death may occur at any time from a day to over a week.

Upon bacteriological examination it is found that the two types of symptoms may be referred to two types of microörganisms, *B. botulinus* and bacteria of the paratyphoid group. *B. botulinus* is an obligate anaërobe and is not found in

meat, except after some form of preservation. In fact, the intoxication it produces was long known as "Wurstverfitung." Though the spores may be heat resistant (3, 4, 5), the toxin is really destroyed by heat (100°c. for 5 min., or 70° c. for 30 min.), and it is this alone that is dangerous. The organisms do not seem to produce a toxin within the intestine (3, 4, 5). The prophylaxis is evident.

But the other class of organisms is not so readily disposed of. In several cases, though by no means generally, these have been found to form a toxin which may be heated to 100° c., or even 120° c., for several minutes, in some cases as long as half an hour (2, 6, 7, 8). One, obtained by Van Ermengen, (9) was apparently a proteose. It was soluble in water, precipitated by alcohol, mercuric chloride, picric, tannic, and phosphomolybdic acids but not by ammonium sulfate, sodium chloride, or hydroferrocyanic acid. It gave the Millon, Adamkiewiecz and biuret reactions.

The relatively simple substances known as ptomaines cannot be regarded as responsible for the symptoms observed. They are not nearly sufficiently toxic, particularly when given by mouth. Their existence, in any but very badly decomposed meat, is open to question. Moreover, they may be produced by the very means taken for their isolation. The work of Ewins (10), of Baumann and Ingvaldsen (11) and of Greenwald (12) shows that methylguanidine is formed from creatine by the reagents usually employed for their separation. What is true of this substance may also be true of others.

In these experiments no attempt was made to investigate the possible occurrence of heat-stable toxins. Under ordinary conditions, it would be quite impossible to separate their effects from those produced by the ingested bacteria. Broth cultures and parenteral administration were judged unsuitable. Results obtained with such methods have little significance in the investigation of a problem such as this. "Meat poisoning" is produced by the *ingestion* of food that has not, as a rule, been exposed to prolonged bacterial action. Also, the filterable toxin of cholera vibrios, which will produce severe gastroenteritis when injected intraperitoneally, is harmless when given by mouth (13). What is true of cholera vibrios may also be true of other organisms.

The following procedure was adopted. A weighed quantity, about 100 gm., of hashed meat (prepared in the laboratory from fresh beef) was introduced into each of five or six glass jars. The meat was then infected by the addition of 2 or 3 cc. of a 24-hour broth culture of the organism to be studied, and the jars were then set aside at room temperature (10° C. to 25° C.). After a day or two the tests were begun. Each day a jar was taken, immersed in water which was then rapidly heated to boiling and kept boiling for thirty minutes. The jar was then removed and the meat mixed with one-fifth of its weight of bread crumbs. This served to absorb the liquid. The mixture was then fed to rats and mice. For guinea pigs it was found necessary to dilute the mixture further by the addition of three-sevenths of its weight of chopped lettuce or carrots. Each day, another jar was taken, treated in the same way and fed to the same animals.

The following strains of bacteria were used:

B. enteriditis (obtained from Dr. J. Bronfenbrenner, Harvard Univ.).

B. enteriditis (Dr. W. Rothberg, American Museum Nat. History, N. Y.).

B. putrificus (Dr. F. Hulton-Frankel, Columbia Univ.).

B. botulinus (Dr. F. Hulton-Frankel, Columbia Univ.).
B. fecalis alkaligenes (Dr. F. Hulton-Frankel, Columbia Univ.).
B. proteus, 2 strains (Dr. F. Hulton-Frankel, Columbia Univ.).
B. paratyphoid B., 4 strains (Dr. O. E. Jordan, Univ. of Chicago). (Isolated from meat supposed to have caused poisoning).

Meat condemned as being likely to give rise to "meat poisoning" was obtained from a slaughter house. There were two samples of meat from cows suffering from septicemia and three from calves with pyemia, enteroperitonitis and septicemia, respectively. These were used as in the other experiments, but were not further infected. The last sample of meat was also fed in the raw state.

The results were all negative. The rats and mice thrived on the diet. The guinea pigs, as a rule, lost in weight because they did not eat enough. But they consumed sufficient of the food to have caused death, if any considerable amount of toxic substance had been present.

At the suggestion of Dr. E. F. Baumann a concentrated cold water extract of meat was sterilized by the addition of hydrochloric acid to a H-ion concentration of 10–3 to 10–4 then neutralized and diluted to bring the NaCl content to 0.6–0.7 per cent. This was infected with a strain of *B. paratyphosus B*. After standing for three weeks at room temperature, the organisms were killed by heating at 70°C. for one hour. No ill effects were observed on feeding this to rats, mice, guinea pigs and a dog.

The failure of the experiment to demonstrate the presence of a heat-stable toxin may have been due to the choice of the experimental animals or to the low virulence of the strains used. It is very likely that man is more susceptible to the products of the bacterial decomposition of meat than are the species used. It is also very likely that more virulent strains would have given different results. But it is also quite evident from the literature that almost all cases of meat poisoning are due to the ingestion of imperfectly cooked food. There are, however, a few cases in which well cooked food appears to have caused illness and one strain, grown in broth, produced a toxin capable of killing guinea pigs when given through a stomach tube. But such organisms must be very rare.

The rapid development of the symptoms of "meat poisoning" indicates very clearly that they are not entirely due to the action of microörganisms within the gastrointestinal tract. There seems to be a heat-labile toxin with produces the acute immediate effects. The bacteria may, or may not, grow and add a further intoxication. The particular organism may be what Van Ermengen (3) calls a "pathogenic saprophyte" such as *B. botulinus*. This organism produces a highly potent toxin but the bacilli themselves are harmless because they are incapable of growing at body temperature. With other organisms, other factors may play a similar rôle. Van Ermengen was unable to infect guinea pigs by feeding them a virulent strain of *B. enteriditis* until he had first neutralized the acidity of the gastric juice. It is quite likely that the gastric juice similarly protects the human organisms.

Further investigation is required and should take the direction of an investigation of possible heat-labile toxins. They were not included in this investigation because the findings, whatever they might have been, could not have affected the prophylaxis to be followed. This includes the ante- and post-mortem inspection of the animals, careful handling and storage and thorough cooking in all cases where the meat may have been infected. The flesh of animals suspected

of infection with organisms of the paratyphoid group should never be used for food.

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A UNIVERSITY HEALTH SERVICE.

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Here are hints of value for community medical service as well as for that of a school. Few colleges have developed a real health service for their students, but there are many that need one. The development at the University of Michigan, with five years of experience, ought to be helpful to institutions throughout the country.

An important application of medical service is in operation at many of our colleges and universities. The importance of such activity should appeal to public health men who are interested in such phases of community medical work as health insurance, public dispensaries, etc. Richard Cabot characterized the medical attention given to students in some of our universities as an approach to the ideal.

Certainly our universities will fall short of their possibilities if they do not lead in determining the status of new phases of medical work. They have been prompted to develop medical attention to students in many cases because of their paternalistic responsibilities.

The University of California was among the earliest to provide medical attention of this sort on an extensive scale. Its organization is about twelve years old and might well serve as a standard for the development of similar organizations elsewhere. Almost all American colleges and universities now provide some medical attention, on a community basis, for their students. The excellence of the medical attention so furnished to present day students will, doubtless, influence the character of medical service demanded of their communities in the future.

The Organization at the University of Michigan.

The demand for medical attention to students at the University of Michigan was met for many years by the facilities of its medical schools only. During 1912, however, the demands for added

facilities resulted in an organized service to be responsible for the health of students. Its activity started with the opening of the 1913 term.

In accordance with the broad ideals, the organization was created as the University Health Service. The scope of its activity was made to include generally all phases of university and student life which might affect student health. Since, however, the greatest demand was for attention to sick students, the clinical work was first inaugurated and has since been the main activity.

The personnel of the service was made up of three men and one woman, full-time physicians, two dispensary nurses, a pharmacist, and a stenographer, headed by Dr. H. H. Cummings. A laboratory assistant and one physician were added later. The physicians were selected to do general rather than specialized work, and were given faculty standing in the department of administration, with graded rank and salaries such as existed in established lines of public health work.

The financial support of the work was entirely from a general student annual fee of $4, collected by the university at registration. The expenditures were governed the same as for other departments, and exceeded the income in only one year. The fee was increased to $6 with decreased attendance of war time. The establishment and operation of the work met with no opposition from local physicians, students or other sources.

Headquarters and Dispensary.

A building near the campus was equipped as a fairly complete dispensary and as headquarters for the service. The building was soon overcrowded and remains inadequate. Since the greatest demand has been for attention to sick students, most of the work has centered in the dispensary.

Liberal dispensary hours have been maintained when both men and women students could receive unrestricted office attention and ordinary medicine without charge. Prescriptions are filled in coöperation with the university department of pharmacy. Students requiring the attention of specialists are referred to the university hospitals which coöperate with the Health Service. Records are kept and reports are sent to the university authorities at intervals. As would be expected, students often report for very minor troubles. This is not discouraged, since the earliest possible attention is often most important. Opportunity is thus afforded the physician to give attention which may be independent of the complaint, but of considerable importance to the student. The facilities of the service are available to summer school students the same as to those of other sessions.

The following selected summaries, taken from an annual report, illustrate the nature and amount of activity in the dispensary for a typical year:

Total dispensary calls	26,896
Total patients (77 per cent of enrollment)	5,792
Average daily calls	110
Estimated average expense per call	65c

Diagnoses Selected.

Acne vulgaris	109
Asthma	18
Appendicitis	71
Abrasions, various	25
Abscess, alveolar	9
Bronchitis	180
Conjunctivitis	115
Circumcision	37
Dermatitis, various	45
Diphtheria	12
Diabetes	2
Epilepsy	2
Nasopharyngitis, acute	181
Furunculosis	117
Fractures	20
German measles	58
Gonorrhœa	19
Hygienic advice	115
Infections, various, local	110
Impetigo contagiosa	17
Laryngitis, acute	229

Myalgia	113
Otitis media, acute	38
Pharyngitis, acute	940
Physical examination	1,620
Pneumonia	14
Pleurisy	26
Rhinitis, acute	673
Scarlet fever	22
Sinusitis	34
Sprains, various	85
Syphilis	3
Scabies	3
Smallpox	1
Tinea cruris	11
Traumata, various	125
Tracheitis, acute	67
Tonsilitis	433
Tuberculosis	20
Typhoid fever	15
Verruca	121
Vaccination	1,228
Vincent's angina	7

Record of each call is made on a small printed slip which is filed in an individual folder after an index of names under diseases and other data is recorded. Condensed daily summaries are permanently recorded for use in reports and comparisons.

Hospital Care.

A necessary part of the attention to sick students is hospitalization, as part of their privileges in the Health Service. Such patients are sent to the hospitals operated by the medical departments of the university, where they may receive free necessary attention for a limit of sixty days. The medical service in the hospitals is given by their regular staffs and is under coöperative supervision of the Health Service physicians. The following selected summaries are from one year's record of hospital cases.

Selected Diagnoses.

Appendicitis	40
Abscess peritonsilas	15
Bronchitis	1
Diphtheria	10
Measles	8
Nephritis	2
Otitis media acute	7
Pneumonia	8
Scarlet fever	15
Syphilis	1
Tuberculosis	1

Other Activities.

Physicians of the Health Service attend students when called to their rooms. For such calls the university collects from the student $1 for a call in daytime and $2 for a night call, and places the money to the credit of the Health Service. The number of such calls during a typical year, 1916–17, amounted to 433.

From the start, a number of lines of activity recognized as fundamental in the prevention of disease and the improvement of health have received some attention from the organization. Of such, a tuberculosis survey of students, rooming and boarding house inspections, and occasional health lectures are noteworthy. Because of the more pressing demand for purely clinical work the collateral activity has been limited.

The organization was able to do important work in war activity by the examination of prospective soldiers and sailors, and by the treatment of those variously stationed at the university. Assistance was given in food conservation and first aid instruction.

The Fifth Year.

From four years' experience and with a change in administration in October, 1917, considerable effort was made to better systematize and extend the work. It was recognized that in order more nearly to realize the possibilities of a Health Service, regular and sustained effort should be made along various lines well known in preventive medicine. A number of these have been started, but because of interruptions incident to the war, some remain yet as plans for the near future.

Absolute freedom was given students in the selection of a staff physician regardless of sex. Arrangement exists by which

private hospitals may be used in addition to those of the university. Rearrangement of dispensary rooms, records, and staff have been helpful in the standardization of routine for the handling of large numbers of patients. Most of the contemplated lines of extension have had university approval and some have been applied.

All new students are to receive a more uniform, careful and completely recorded examination in coöperation with the departments of physical education soon after entrance into the university. Such records will be of much value in the subsequent care of these young people, and it is hoped that much good advice will result for students before they have progressed far in the university. Women students have been so examined in the past and men of whom gymnasium work was required were examined physically by the Director of Physical Education. Repetition of the examinations annually for each student would be productive of much good.

All freshmen in the literary and engineering departments will be given a series of required lectures and demonstrations concerning the care of their health. Compulsory courses of longer duration in personal health are desirable.

Plans for the establishment of approved boarding and rooming houses, restaurants and soda fountains frequented by university people will require attention to points well known in preventing the spread of disease.

Proof of one successful vaccination against smallpox will be required for continued attendance in the university.

Such an organization has large possibilities in that it might well coöperate with other organizations in developing public health education.

Conclusions.

From our experience we conclude:

1. That the medical attention given to students in many of our colleges and universities will interest men who are concerned as to the development of community medical service.

2. That five years' experience at the University of Michigan have established its Health Service as a permanent and very necessary part of the university.



Reconstruction Program in a Rural Community.—In central southwestern Iowa there is a region which centers about Creston, from which at least 100,000 people can be reached conveniently. It has been possible to organize this district on a coöperative plan and to install modern machinery for the protection of the public health. The health program for this district includes a health survey of six counties covering the rural and city schools, a central free dispensary for indigent school children, a central free dispensary for tuberculosis, a health and social center with a well-trained public health nurse as executive secretary, a permanent child welfare station for children up to five years of age, a psychopathic clinic for the study of defective, incorrigible and otherwise abnormal children, a training school for nurses where they will receive special training in public health and social service work, and a modern hospital with fireproof buildings and up-to-date equipment.—Katherine M. Olmstead, *The Public Health Nurse*, April, 1919. (*M. P. H.*)

Infecting Agent in Influenza.—An emulsion of the sputum from forty-three influenza patients was made in Ringer's solution. This emulsion was instilled into the nose and throat of twelve healthy persons. The Berkefeld filtrate of this emulsion was administered in the same manner to twelve other healthy individuals. Among these were six who had already had influenza. All but these six were attacked by the disease after an incubation period of two or three days. The symptoms were those of a typical influenza. A filtrate of blood of influenza patients was injected into the nose and throat of six more healthy persons with precisely the same results. A pure culture of Pfeiffer's bacillus and a mixed preparation of the Pfeiffer bacillus with pneumococci, streptococci, staphylococci, diplococci were injected into the throat and nose of fourteen healthy people with negative results.—T. Yamanouchi, K. Sakakami and S. Iwashima, *Lancet* (London), June 7, 1919.

A FEW FACTS TO REMEMBER IN THE INTERPRETATION OF BACTERIOLOGICAL FINDINGS.

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This is one of the helpful hints for health officers that the Journal intends to present once in a while. The question about interpretation was asked and Dr. Castleman prepared an answer. It was so good an explanation that it seemed worthy of wide distribution, and here it is.

A GREAT part of the daily routine of a bacteriologist is to answer whys and wherefores of bacteriological findings. To minimize this work we deem it advisable to jot down the following few pointers, with the hope that it will reach a large number of the medical profession and save time which could be utilized to better advantage.

There is no claim for anything original. It is simply a collection of well-known, long-established facts, presented in a concise form:

DIPHTHERIA (K. L.).

I. When positive bacteriologically, clinical symptoms present:
   a. Diphtheria.
II. When positive bacteriologically, clinical symptoms absent:
   a. Convalescence.
   b. Carrier.
   c. Non-virulent K. L. Organisms (Release Cultures).*
   d. Pseudo diphtheretic organisms. (Hoffman Bacillus, etc.)
III. When negative bacteriologically, clinical symptoms present:
   a. Improperly taken cultures.
      1. Application of antiseptics to area of infection prior to taking culture.
      2. Infection with membrane forming organisms not K. L. (Vincents Angina, streptococci, etc.).
      3. Material not taken from base of membrane.
      4. Faulty application of swab to media.
      5. Retaining culture too long in a warm place before submitting to laboratory.
   b. Overgrown cultures.
   c. Faulty technique in laboratory.
      1. Poor smear.
      2. Poor stain.
      3. Inexperienced examiner.
      4. High temperature of incubation (over 40 degrees C.).
IV. When negative bacteriologically, clinical symptoms absent:
   a. Negative.
V. Inconclusive findings:
   a. No growth.
      1. Serum improperly inoculated.
      2. Dry serum.
      3. Improper temperature of incubation.
   b. Contaminated culture.
      1. Non-sterile swabs.
      2. Non-sterile media.

*Animal inoculation and sugar tests only conclusive evidence.

3. Contamination at time of inoculation.

c. Suspicious report.

1. Insufficient growth of culture.
2. Atypical organisms.

TYPHOID (WIDAL REACTION).

I. When positive bacteriologically, clinical symptoms present:
   a. Typhoid Fever.
   b. Prophylactic reaction.
   c. Clinical symptoms similating typhoid; bacteriological findings positive due to active or passive immunization.

II. When positive with atypical clinical symptoms present:
   a. Other diseases to be considered.*
   b. Active or passive immunization.
   c. Insufficient dilution of blood.

III. When positive bacteriologically, with no clinical symptoms present:
   a. Carrier.
   b. Active or passive immunization.
   c. Other febrile diseases.
   d. Faulty technique.
      1. Insufficient dilution of sera.
      2. False agglutination.
      3. Use of hot platinum loop.

IV. Atypical Widal Reactions:
   a. Early stages of disease,
   b. Fading of reaction after active or passive immunity.
   c. Insufficient dilution of blood.
   d. Paratyphoid fever (Alpha or Beta) or *B. proteus*.

V. Negative widal, clinical symptoms present:
   a. Early stages of disease.
   b. Faulty technique.
      1. Too high dilution of sera.
      2. Use of non-agglutinating organisms.
      3. Use of hot loop in preparing specimen for test.
      4. Insufficient time allowed for agglutination to take place.
   c. Faulty taking of specimen.
      1. Applying heat to specimen of blood for purpose of drying.
      2. Use of strong disinfectant on skin just prior to taking of specimen.
   d. Diseases simulating typhoid (pneumonia, military T. B., malaria, etc.).

MALARIA.

I. Positive bacteriologically, clinical symptoms present:
   a. Malaria.

II. Positive bacteriologically, clinical symptoms absent:
   a. Chronic malaria.

III. Negative bacteriologically, clinical symptoms present:
   a. Smears not taken after a chill.
   b. Smears taken after prolonged quinine administration.
   c. Smears poorly made.
   d. Faulty technique.
      1. Improper staining.
      2. Hurried examination.
      3. Inexperienced technician.

TUBERCULOSIS.

(*Sputum Examination.*)

I. Positive bacteriologically, clinical symptoms present: (Pulmonary).
   a. Tuberculosis.

II. Positive bacteriologically, clinical symptoms absent:
   a. Latent stage.
   b. Early stage of disease.
   c. Sputum containing too much blood.
   d. Faulty laboratory technique.

III. Negative bacteriologically, clinical symptoms present:
   a. Saliva submitted instead of bronchial secretions.
   b. Focus of infection not open to bronchi.
   c. Faulty technique.

*(Miliary T. B., malaria, malignant endocarditis, and pneumonia occasionally give positive Widals.)

1. Improper preparation of material for examination.
2. Failure to shake sputum thoroughly before smearing.
3. Insufficient staining with carbol fuchsin.
4. Over decolorizing.
5. Too hurried examination.

IV. Genito-Urinary tuberculosis:
a. Animal inoculation and recovery of organisms only conclusive test.
(N. B. Acid fast organisms in direct examination may be smegma bacillus, etc.)

GONORRHŒA AND GONORRHŒAL OPHTHALMIA.

I. Positive bacteriologically, clinical symptoms present:
a. Gonorrhœa.
II. Positive bacteriologically, clinical symptoms absent:
a. Chronic case.
b. Organisms morphologically resembling gonococci.
(*Meningococci, pneumococci, Micrococcus catarrhalis, etc.*)
c. Inexperienced technician.
III. Negative bacteriologically, clinical symptoms present:
a. Chronic case.
b. Improper method of taking smear.
c. Improper staining.
d. Improper examination.

SYPHILIS (WASSERMANN REACTION).

I. Positive serologically, clinical symptoms present:
a. Syphilis.
II. Positive serologically, clinical symptoms absent:
a. Latent case.
b. Inheritance.
c. Febrile diseases and certain skin or tropical diseases.
d. Faulty laboratory technique.
1. Unreliable reagents.
2. Unskillful technique.
3. Anticomplementary blood.
1. Natural.
2. Old specimen.

III. Negative serologically, positive clinically:
a. Early stage of disease.
b. Specimen taken at time of intensive medication or imhibition of alcoholic liquors.
c. Neurosyphilis (Spinal Fluid Pos?).
d. Latent syphilis.
e. Faulty laboratory technique.

PNEUMOCOCCUS TYPE DETERMINATION.

I. Positive bacteriologically, clinical symptoms present:
a. Positive for type of organism as shown by reaction.
II. Positive bacteriologically, negative clinically:
a. Normal non-virulent organisms in oral flora.
b. Faulty reagents.
c. Faulty technique.
III. Negative bacteriologically, clinical symptoms present:
a. Faulty technique of collecting sputum.
(saliva instead of bronchial secretion)
b. Old specimen of sputum.
c. Faulty technique.
d. Faulty reagents.

RABIES.

I. Positive microscopically (on brain smear & section) with positive clinical symptoms:
a. Rabies.
II. Positive microscopically, negative clinically:
a. Early stages of disease (clinical symptoms not developed).
b. Faulty technique (animal inoculation desirable).
III. Negative microscopically, positive clinically:

a. Animal killed in the early stages of the disease.
b. Destruction of brain tissue due to shooting through the brain.
c. Faulty technique (animal inoculation desirable).
d. Disintegration of tissues due to age or temperature.

MILK.

I. Points to be observed:
a. Sterile means of collecting specimens.
b. Icing specimens up to time of examination.
c. Examination as soon after collection as possible.
d. Technique employed in bacteriological examination.
1. Specimen to be thoroughly shaken before examination.
2. Use of beef infusion media in preference to beef extract media.
3. Use of Slack method in preference to the Breed or Frost methods.
4. Bacteriological counts to be made as recommended by American Public Health Association, with magnifying glass, box, etc.

There are a number of other tests which a bacteriological laboratory is called upon to perform from time to time, but these are so varied that a description of them is almost impossible in the above form.

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ACTIVITIES IN PUBLIC HEALTH MATTERS BY FEDERAL DEPARTMENTS OTHER THAN THE UNITED STATES PUBLIC HEALTH SERVICE.

Report of Committee to Conference of State and Provisional Boards of Health, June 6, 1919, at Atlantic City.

At the annual meeting of the Conference a year ago, your Committee made no report because the country, being engaged in the mightiest enterprise of its history, was not in a condition to lend its interest or sympathy to complaints or criticism, nor were the states and their departments of health willing to be diverted for an instant from their supreme task of doing everything in their power to win the war.

The war is now over, that is, the war in France and Flanders, and there is no longer any reason why this Conference should not consider certain conditions which threaten the efficiency and integrity of the regularly organized health agencies of the states and the Federal government.

While numerous governmental agencies in the discharge of their regularly ordered duties contribute indirectly to the promotion of the public health, with the exception of the Public Health Service, these agencies were organized for other purposes and would better be required to confine their activities to the carrying of them out.

As the result of the popularity of the public health movement, however, there has lately been a tendency for various bureaus and divisions to engage directly in sanitary work. Moreover, with the onset of the war and the recognition of additional health problems that would arise, this tendency was especially apparent among newly created war agencies. There was danger not only of their misjudging the proper scope of their own activities but of those of already established agencies.

Fortunately this tendency, as effecting health activities in relation to the war, was in part corrected by means of executive order of July 1, 1918, which reads as follows:

EXECUTIVE ORDER.

WHEREAS, in order to avoid confusion in policies, duplication of effort, and to bring about more effective results, unity of control in the administration of the public health activities of the Federal government is obviously essential, and has been so recognized by acts of Congress creating in the Treasury Department a Public Health Service, and specially authorizing such service "to study the diseases of

man and the conditions influencing the propagation and spread thereof" and "to coöperate with and aid state and municipal boards of health":

Now, therefore, I, Woodrow Wilson, President of the United States, by virtue of the authority vested in me as Chief Executive, and by the act "authorizing the President to coördinate or consolidate executive bureaus, agencies, and offices, and for other purposes, in the interest of economy and the more efficient concentration of the government," approved May 20, 1918, do hereby order that all sanitary or public health activities carried on by any executive bureau, agency, or office, especially created for or concerned in the prosecution of the existing war, shall be exercised under the supervision and control of the Secretary of the Treasury.

This order shall not be construed as affecting the jurisdiction exercised under authority of existing law by the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Provost Marshal General in the performance of health functions which are military in character as distinguished from civil public health duties, or as prohibiting investigations by the Bureau of Labor Statistics of vocational diseases, shop sanitation, and hygiene.

Woodrow Wilson.

The White House, July 1, 1918.

The purposes of the above mentioned order would seem as applicable in times of peace as in war. Its provisions should be continued accordingly. Even though the undertaking of public health activities by miscellaneous bureaus or divisions not organized for this purpose may serve as an argument to increase their appropriations and stimulate their growth, such action is unfortunate as it discourages proper division of responsibility, encourages duplication, brings about confusion and lack of economy and ultimately actually retards growth of public health work.

While there should, of course, be no limitation of the beneficial effects to follow the legitimate activities of the various bureaus and divisions, their respective fields should be clearly defined by law and by precedent, and proposed legislation should aim at the proper correlation of these agencies in order that each would be a potential aid and not usurp the powers and duties of the others.

By a series of acts the United States Public Health Service has been established and developed thus far so that practically all of its activities are of a public health nature. It should accordingly be built upon and held responsible for the conduct of the Federal health administration, receiving such coöperation of the other governmental agencies as may be needed, particularly in view of its being provided with the Public Health Reserve and because of the relation it bears under the law to the state and municipal authorities.

In considering Federal health development, questions arise as to the desirability of consolidating or coördinating existing activities and agencies, and the need of creating additional ones.

The object should be to develop as efficient an organization as possible with which to meet all reasonable demands made on the Federal government for the protection of life and health.

When a new activity arises the agency to be entrusted with its conduct should be determined by the object primarily to be accomplished. Logically, it would be as proper to expect a public health agency to engage in agriculture in the interest of sanitation as an agricultural agency to engage in public health activities on the ground that outdoor life is conducive to health, practically all drugs come from the soil, and all foods raised are essential to human existence. Similar fallacious arguments might be advanced by different bureaus as an excuse for taking up any of the great governmental activities. As a result there would be endless confusion and the objects primarily sought would not be accomplished.

Since the whole field of governmental activity has already been surveyed and attempts made here and there to develop it, though at times with little sanction of law, questions of expediency must be taken into account in considering changes, but they should not be allowed to interfere with permanent development. Furthermore, the extent to which health activities of like nature in the several states have been entrusted to their respective sanitary agencies must be taken into account, for it is highly desirable that state and Federal activities should be developed along parallel lines, and the organizations conducting them should be as homogeneous as possible.

Correlation of Agencies.

In general, correlation may well be effected of those agencies which, while independent,

have a more or less common object and which can profitably exchange facilities and personnel. It has been urged from time to time, for instance, that the supervision of foods and drugs by the Federal government should be coördinated in the same department with its sanitary activities on the ground that the former has a public health bearing.

There would be certain undoubted advantages in this association although the main object of the supervision of foods and drugs is to prevent fraud. By their proper correlation these activities could undoubtedly be harmoniously conducted in the same department. Such action is not vital, however, to either group of activities, and should be attempted only after the most thorough understanding of the bureaus concerned.

Activities affecting the hygiene of childhood, likewise, might well be conducted in close relation. While the Children's Bureau relates essentially to social problems affecting children, matters of health are also construed as forming a part, with the result that duplication of effort and lost motion are likely later to follow. In many state and local governments these activities are conducted by their respective health organizations. In order to coöperate with them the Federal government's work should likewise be conducted. In doing so, no limitation should be imposed on social work on the one hand and sanitary work on the other. It is true, coöperation has thus far been had through arrangements on the part of the interested agencies. It would be well if this were specifically required by law, if it was found undesirable to transfer this bureau to the Public Health Service. The suggestion has been made for the creation of an interdepartmental committee which shall interpret existing law to the end that duplication, confusion, and waste shall be avoided; this would seem to be but added machinery to further stifle initiative and retard the evolutionary development of a well rounded out department of health, for it seems that the consummation of that hope may be achieved in no way.

Consolidation of Agencies.

On account of their similarity it is desirable that certain activities and agencies be consolidated, for instance, the collection, interpretation and dissemination of vital statistics. With the recognition of the greater importance of public health, the value from a sanitary standpoint of records of births, marriages, sickness, and death becomes more and more evident. The machinery for their collection by the Federal, state and local governments should, therefore, be unified and made harmonious.

From an administrative standpoint it would seem advisable to transfer the Vital Statistics Division of the Census Bureau and combine it with the Division of Sanitary Reports and Statistics of the Public Health Service. The objects of these two divisions are similar; they both secure their data from the same agencies, and these data are the basis of all public health work.

The fact that mortality statistics are based on population statistics does not imply that they should be collected by the same agency, for they are not collected in the same manner. Furthermore, population statistics are of a very general nature and essential to much of the government's statistical work, including the preparation and use of morbidity statistics.

It is believed the systematic collection of morbidity and mortality reports, by the same agency, on the other hand would be the means of developing and stabilizing this Federal health activity by increasing the appropriations for its proper conduct. Furthermore, it would encourage like development on the part of states and municipal governments.

Measures instituted by the Federal and state governments for the development of mental hygiene and school sanitation should devolve on the duly constituted health authorities. Attendance at school is a compulsory occupation which has a profound influence on the health and progress of the rising generation. The duties of safeguarding it cannot properly be disassociated from other health work, involving as they do not only periodic inspections, but constant watchfulness in and out of the school room to prevent communicable diseases, and systematic studies to improve physical and mental hygiene.

All systematic investigations of nutritional diseases of man, authority for some of which have been granted or implied in various appro-

priation acts, should be performed by the Public Health Service through its laboratories of physiological chemistry. This is certainly public health work and should be under the same directing supervision as studies of beriberi, pellagra and similar affections being studied by that service. The Federal government should not be expected to duplicate organization and facilities for the study of problems of such a highly technical nature. Authority should exist, however, whereby the results of correlated studies would become available from every source possible.

Problems of health affecting industry especially should devolve on the duly constituted health agencies of both the Federal and state governments. These problems are many sided and recognized as requiring diverse observations and research of a high order. Furthermore, they must take into account not only the effect on health of places of employment, but environment outside the workshop and the habits and customs of employees in relation to health from childhood to old age.

In fact, health problems generally must properly be considered in relation to each other, and the organization whose duty it is to do so should be developed accordingly. In the last analysis the extent of this development will depend on available facilities, and any act which limits them from proper use will react injuriously.

While the tendency to duplicate and multiply health agencies in the Federal government during the past few years has been a matter of concern to the friends of public health, the same unfortunate condition has not been uncommon in the states, the result of attempted legislative enactment or of private or benevolent enterprise.

Perhaps the most recent and most unfortunate illustration of this latter condition is the effort on the part of the Division of Nursing of the American Red Cross to establish a Public Health Nursing Service in every county in every state, the work proceeding in most of the states without the knowledge of the regularly constituted local or state health authorities, and consequently without any effort being made or sought to secure their intelligent coöperation. The honorable and exalted place the American Red Cross rightfully has in minds and hearts of the American people gives to it an open door in almost every community and thus their failure to recognize and cooperate with the local health officials has a tendency to discredit these officers and to bring discord and confusion, where comity and unity of purpose would better serve both the community and those who are supposed to be working to a common end.

It seems to your Committee, that a "Get Together Committee" of the Conference might with profit to all concerned, be appointed to get in touch with the officials of such country-wide organizations that are doing local community work, such as the Red Cross and the National Tuberculosis Association, to the end that a better understanding and more thorough coöperation be established between them and the regularly constituted health authorities.

S. J. Crumbine, *Chairman.*
W. S. Leathers
J. W. Kerr.

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ABSTRACT OF THE REPORT OF THE COMMITTEE ON PROGRESS OF FULL-TIME DISTRICT HEALTH OFFICER LEGISLATION.

Presented to the Conference of State and Provincial Boards of Health, June 6–7, 1919, at Atlantic City, N. J.

At as late a date as seemed practicable a questionnaire was sent by the committee to all state and district health authorities asking for information on certain points. These included new laws relative to full-time district health officers, and if such laws had been enacted, the provision of such laws; the number of full-time district health officers employed in the state and their salaries; the agency paying their salaries; whether or not the

entire state or province is covered by the district health officer plan, and if not, what system of health officership is generally employed throughout the state; together with information as to the degree to which the plan may be considered satisfactory. Pending legislation was included in the questionnaire.

Fifty-three questionnaires were sent out and replies were received from all states, provinces and districts, Kentucky, Oregon, Tennessee, Washington and the Philippine Islands excepted. As was to be expected in some instances the information was indefinite and unsatisfactory, and in some cases details were left to be filled in at some later date.

In only seven of the states or provinces have new laws been passed since May, 1918, these being Alaska, Arkansas, Delaware, Ohio, New Mexico, Vermont and West Virginia. Six other states had passed laws of this character before May, 1918, so that the number of states which have shown progress within three years in the direction of district health officers is twelve. In this connection the committee notes that in a considerable number of states General Assemblies are now in session, and it is not unlikely that other laws will soon be passed.

The Ohio law, the most important of the year, provides that each county and each city of more than 25,000 population must employ for full-time service a health officer, a public health nurse and a clerk, while in addition the State Health Department is provided with eight district health supervisors, who were to have begun their duties on July 1, 1919. The salaries are to be, for county and municipal officers, from $2,000 to $6,000 a year, paid from local funds; while the district supervisors are to receive from $2,000 to $3,000 a year, paid by the state.

In Vermont a bill has been passed providing for the employment of ten full-time health officers who are to receive a salary of $2,500 a year and traveling expenses, the law becoming effective on July 1, 1919.

The reports from Arkansas and West Virginia indicate the passage of new full-time health officer legislation, but are not definite, and lead to the inference that the laws will provide for local and not for district health officers. The West Virginia law authorizes a three-mill tax for the employment of full-time health officers, while the Arkansas report states that satisfactory applicants have not been obtainable.

The report from Alaska states merely that a law has been passed.

In New Mexico the State Health Department has just been created under an act that authorizes the employment of district health officers.

About twenty states and provinces report the employment of full-time district health officers, ranging from one to fifteen, but the committee suspects a misconception on the part of the informants, and some states having only full-time local health officers are included in the list. It is certain, however, that in twelve states, provinces or territories, full-time district health officers are employed with salaries ranging from $1,500 to $4,000 a year.

During the year there has been some progress of very satisfactory nature, but on the whole the situation throughout the nation remains in much the same condition as a year ago. In twenty-five out of the forty states that have replied the present method of health administration is declared generally unsatisfactory.

Comments and criticisms received in the questionnaires indicate that increased thought is being given to the district health officer plan. Out of 36 references to the matter, 19 approved the district health officer plan, 10 gave a modified approval and 7 looked upon it with disfavor. Some of the last-named are small states which regarded the district plan to be unnecessary, but some of the larger states prefer one central administration. Opinions in the matter are diametrically opposed one to another. The plan is generally approved by the states employing it, and the criticism comes largely from states where other administrative methods are in force.

From this divergence of opinion the committee expresses a belief that the details of the district health officer plan are not as generally or as clearly understood as they should be.

The Report was presented by

C. St. Clair Drake, M. D.,
State Director of Public Health, Springfield, Ill.

REPORT OF THE COMMITTEE ON TUBERCULOSIS POLICY.

Presented to the Conference of State and Provincial Boards of Health, June 6–7, 1919, at Atlantic City, N. J.

This committee, consisting of Doctors H. M. Bracken, John T. Black, and A. T. McCormack, and Dr. F. C. Smith of the U. S. Public Health Service as consulting member, made a report to the Conference at its meeting in 1918, presenting at that time certain resolutions. The Conference was requested to delay action on the resolutions for one year, and to arrange that a committee of five be appointed from the National Tuberculosis Association to have a conference on these resolutions in order to get both the clinical and administrative viewpoints on the proposition.

Dr. George T. Palmer, assistant director of the Illinois State Department of Public Health, was asked to bring this matter to the attention of the National Tuberculosis Association. Doctor Palmer did so, and the committee was appointed consisting of Dr. H. E. Dearholt, executive secretary of the Wisconsin Association; Dr. J. W. Coon, of Stevens Point, Wis.; Dr. Wilson Ruffin Abbott, of Springfield, Ill.; Mr. W. D. Thurber, executive secretary of the Illinois Tuberculosis Association, and Dr. W. O. McMichael, Asheville, N. C.

The resolutions as submitted last year to this Conference are as follows, with additions suggested by Doctor Palmer and his committee, the suggestions being represented by those portions of the resolutions which are *in italic type*. With these additions the committee herewith submits its report.

WHEREAS, Tuberculosis is recognized as a communicable disease,

WHEREAS, This disease is usually spread by the presence of the tubercle bacillus in the sputum of those suffering from the disease:

Therefore, Be It Resolved That

1. Tuberculosis is a social as well as a sanitary problem and its control should be liberally provided for by the state.

2. Tuberculosis should be a reportable disease to the state health authorities.

3. The removal of an open case of tuberculosis from one state to another should be carried out only under the reciprocal notification plan of this Conference. *The removal of such a tuberculous patient from one health jurisdiction to another in the state shall be carried out only under the reciprocal notification plan and under rules approved by the State Department of Public Health.*

4. Every tuberculous patient should be under sanitary supervision. This does not mean that the patient should be under restrictions, but it does mean that the sanitary authorities should satisfy themselves as to whether the individual is living in such a way as not to endanger others. *The physician should be required to advise the patient or his family as to the nature of his disease and to advise the family as to the means of avoiding infection. The physician or local health officer should be required to place in each household literature on the cause and prevention of the disease.*

5. The early case of tuberculosis should be cared for with the intent of bringing about a recovery. There is no danger to others from such a case so long as it remains a closed case.

6. The sanatorium is the best place for the early case of tuberculosis. The purpose of the sanatorium is:

(a) The treatment of the individual, which should comprise not only medical supervision but also dietetic and psychic.

(b) The education of such individuals as to their proper mode of life.

(c) The control of the disease.

7. The "open" case of tuberculosis should never be left at home in association with young children. The open case can be cared for at home if it is possible to prevent the association with children.

8. The sanatorium is the best place for the "open" or advanced case for the purpose of

(a) The control of the disease.

(b) The care of the patient.

9. The "open" case of tuberculosis should be cared for

(a) In order to prevent the infection of others.

(b) In order to bring about, if possible, the recovery of the patient.

10. *Institutional provision should be made for two classes of tuberculous patients:*

(a) *Hospitals for advanced cases.*

(b) *Open type sanatoria for early cases.*

11. *The erection and operation of all public tuberculosis sanatoria should be under the general supervision of the State, either through the State Department of Public Health, or a special state board or commission.*

12. The sanatorium should not be considered primarily either a hospital or a boarding house. It should be so conducted as to make the patients satisfied and willing to stay. *It should be borne in mind that happiness is essential to the recovery of the tuberculous.*

13. If tuberculous soldiers or sailors are discharged from service the health officials of the

political division to which they are going should be advised of the fact in order that they may be properly cared for at the point of destination.

14. Cases discharged from a sanatorium should be followed through social service standardized under the board of health of the state. *To this end, State Departments of Health should develop and maintain divisions of public health nursing and social service.*

15. A special institution should be provided to which the incorrigible tuberculous may be committed.

16. *That, inasmuch as early diagnosis is essential to cure, state health departments shall endorse the establishment of free tuberculosis dispensaries to be conducted by governmental or extra-governmental agencies and shall establish standards for such dispensaries.*

17. *On account of the fact that tuberculosis causes one-tenth to one-eighth of all deaths and a very large percentage of preventable illness, it is recommended that all state health departments shall maintain separate divisions of tuberculosis under the direction of a chief who is experienced in both the medical and social aspects of the disease.*

Dr. Arthur T. McCormack indorses this report with this addition:

I am rather inclined to add that recovered cases should be trained in some vocation that tends to promote their well-being. One of the two frequent results of sanatorium treatment is that the patient is kept idle for so long a time that he never gets back to work again and becomes a permanent infective. The resolutions are so good, however, and cover this point by implication, that it would hardly be worth while to go through the course of securing an amendment.

H. M. Bracken, M. D.,
John T. Black, M. D.,
A. T. McCormack, M. D.,
Committee.

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HISTORY REPEATS ITSELF.

A Vaccination Episode.

In view of the challenge of Dr. Fraser to Dr. Hill to test the efficacy of prophylactic treatment against germ diseases, a matter which has recently been reported in the newspapers, it may be interesting to recall an occurrence in Boston of about twenty years ago, which concerned Dr. Immanuel Pfeiffer and one of the health commissioners. At that time the Health Department was engaged with an outbreak of smallpox and, in accordance with the law, was enforcing vaccination and the isolation of all known cases.

Dr. Pfeiffer, a man of from fifty to sixty years of age, of striking vigor in appearance and in speech, was interested in a publication which had taken up the denunciation of vaccination and the germ theory in general, claiming that all vaccination was useless and even dangerous. He was also numbered prominently among the speakers in favor of a bill then before the Massachusetts Legislature, to repeal the laws enforcing vaccination, etc. As the result of some newspaper discussion, Samuel H. Durgin, M. D., then chairman of the Boston Board of Health, offered through the press to any local physician who was in opposition to vaccination, an opportunity to show his good faith in his fight, and to test his belief in the impotency of vaccination by allowing him to expose himself to smallpox at the hospital of the department.

Within a short time Dr. Pfeiffer called at the Health Department office and requested permission to visit the smallpox patients. He was offered vaccination, but refused it.

"I gave him permission to go to the hospital," writes Dr. Durgin to the Journal, "and he went there accompanied by a competent medical officer. He saw the patients to his satisfaction, and returned to the city. He continued to decry vaccination and kept up his insistence for legislation against it. At the end of twelve days, however, the normal time of incubation, he was missed from his publishing office and from the hearings at the State House.

"He was located in a town near Lowell, and was there visited by two of the Boston Board of Health diagnosticians, who found him severely affected with smallpox. He was attended by an able Lowell physician, who confirmed the diagnosis. The patient recovered and bore thereafter the characteristic marks of the disease."

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Do Not Forget New Orleans—October 27–30.

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HEALTH CENTERS.

Coöperation and coördination, the themes of Dr. George E. Vincent's timely address at the Chicago meeting of the Association, are coming more and more into our health administration. On every side there are evidences of a better appreciation of the "pull together boys" spirit. These are shown in recent legislation and are even more strongly set forth in the health movements within cities.

In the category first named are the laws which permit adjoining communities to unite in the development of certain kinds of health movements. A very recent example of the results of such legislation is in Ohio, where three counties already coöperating have invited two others to join them in the erection and maintenance of a sanatorium for tuberculosis patients.

Health centers are the manifestation and result of coöperation within the municipalities. The Binghamton health center (New York) is one that presents an example of a good many activities joining in very harmonious fashion towards important results. Here the local humane society, possessed of a home in which there was space not demanded by its own administration, offered its spare room to other activities. The result has been that under one roof there are assembled the original society, a mental clinic cared for by the local state hospital, a dental clinic cared for by the local dental society, a tuberculosis clinic cared for by the county tuberculosis hospital, two clinics under the city health department and six other clinics of the local city hospital. Affiliated with these are the Red Cross, a boys' club, a charity club, an employment bureau and city and county probation offices. Altogether eleven activities are brought thus closely into contact. Such contact means the elimination of much lost motion, the avoidance of a great deal of overlapping, and a general unity of purpose and efficiency of action that are distinctly in advance of the methods usually employed.

The New York State health authorities have recognized the value of the health center, have declared their interest in it and have evidenced their intention to aid in the development of such centers. An issue of the *Health News*, the popular official publication of the State Department of Health, that of February, 1919, is largely given over to the subject. General plans have been prepared and information assem-

bled that will be of interest to communities desiring to organize health centers. The Department realizes that different communities will need modifications of any standard plan, and offers its aid and advice in any specific case.

New York is not alone in perceiving the value of this method of coöperation, and in other states movements of kindred nature are under way. Everywhere they have proved to be a means of coördinating the work of organizations which have for their object the betterment of the health of the people. This public health improvement, it should not be forgotten, in its modern aspect includes something of the betterment of the social and economic conditions, as well as popular education in the simple principles of hygiene. Health centers have a great future before them.

PAPERS AT THE ANNUAL MEETING.

As the time approaches for the annual meeting of the Association, and in truth it is only eighty days away, the thoughts of every one turn to the papers to be presented. At large meetings these of course vary in quality, but even when as good as have been the articles from the Chicago meeting that have been published in the JOURNAL, they may be made even better by a little thought. There is one injunction that the JOURNAL would like to lay upon the members engaged in the preparation of papers to be presented at New Orleans, and that is to have them pointed very directly at something. There is hardly anything more discouraging to the man who attends the meetings than to be obliged to listen to paper after paper dealing with broad generalities which have oftentimes too remote an application to the purpose for which he has come to the meeting. This purpose is to equip himself for better service to his home community and other communities which may call upon him.

There are certain types of papers which find fault. They decry present conditions, they call for improvement, but they fail to present any constructive ideas or to name anything to take the place of that which they would pull down. Here is a suggestion for the coming meeting, that there be full measure of papers of the "What-to-do-and-how-to-do-it" type, and fewer that deplore existing conditions and wait with folded hands for the milennium. Let the meeting be marked by the specific messages which the experience at home and abroad the past two years has taught, messages not merely of words, but of living forceful thoughts and suggestions.

There is much in the problems of health administration for live thinkers. At the Chicago meeting it was suggested in a resolution that a request be made for especial consideration of such practical topics as, "The Attitude of Appropriating Bodies towards the Public Health," or "Means of Securing Appropriations Adequate to the Public Health Needs." "Tangible Methods of Securing Coöperation between Public Spirited Bodies," should be another practical topic.

The meeting at New Orleans will of course be a great success, but it in particular assembles factors that can serve to make it a gathering of extraordinary value to the members of the Association. Experiences from every quarter of the globe will be available, and from every walk of life. The Army and Navy will have their stories to tell, the states and cities visited can speak of conquests and combats in sanitation and against disease conditions, and every one will be keyed up by the attention that has of late been focused on public and private health. The hearers will have been already well informed, and it behooves the speakers to add to that store of knowledge. Short, "meaty," addresses which have their point fully in view, will add to the available stores of information and will help make the occasion memorable.

CORRECTION.

In Chart I of the article on "Food Inspection and Food in Relation to Public Health" by G. Koehler, M. D., appearing on page 418 of the June, 1919, issue of the JOURNAL, the figures designating the typhoid fever and infant mortality rates were inadvertently reversed in the diagram. Those appearing on the right-hand side of the upper graph should be inserted below, and vice versa.

NEW ORLEANS.

He who visits New Orleans at the end of October, when the members of the American Public Health Association are scheduled to gather in that interesting Southern capital, will have a feast for the eye as well as a delight for the mind. Here the eighteenth century shakes hands with the twentieth, and, as in some of the charming old capitals of Europe, there is but the need of a score of steps to turn back the pages of time a couple of hundred years. Resistant to the inroads of progress, the older structures have remained, the Cabildo, for example, in which sat the Spanish councillors who made the laws for the province of Louisiana. Here was consummated the purchase of the Louisiana territory, now divided into more than a dozen states of the Union, and in the main "sala" the representatives met whose principals were Napoleon Bonaparte and Thomas Jefferson. It is a fitting use for such a historic edifice that the Louisiana State Historical Society holds its sessions in the great hall. Beside the Cabildo stands the Cathedral, which at the moment is nearing its centennial.

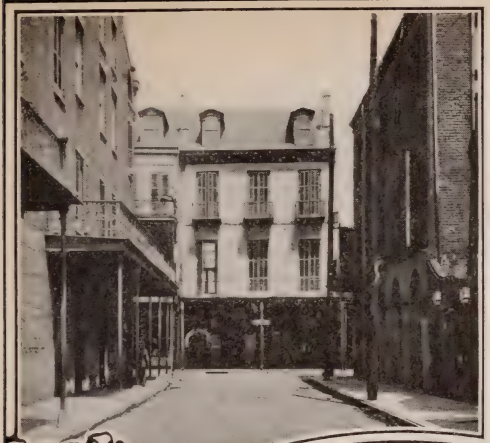
In the old quarter, the French section, the relics of days of long ago persist. Here are the close-shuttered, balconied houses, which have a history of slavery; there is the quiet paved street with its ancient houses, in touch with the present day by the sign, "One-way Street," while on every hand there is the romance of a tropical, out-of-doors, flower-embowered city. Quaint archways lead from the streets, through which one catches glimpses of domestic life, the well nourished Southern "Mammy" in the shade of the soft-hued wistaria or the more florid courtyard with its reminders of former beauty. Here a fountain plashes in the filtered sunlight, there a bed of posies gleams in the brilliance of noon, above a balcony tells perhaps the story of some local Juliet, while luxuriant shrubbery, roof of tiles, shuttered windows and the presence of flowers, breathe picturesqueness and antiquity,—the peculiar charms of this ancient quarter of this old city.

New Orleans has especial interest for the health official and student of health administration, for here the importance of the control of infectious diseases became a subject of public interest at an early date. Clippings from newspapers of nearly seventy years ago show that disease conditions were a matter of almost continual popular discussion. Some of these notices are of interest in these days with completely changed notions of therapy and advanced medical ideas. In an editorial of August, 1853, the New Orleans *Picayune* discusses the African origin of yellow fever. The idea that the slaves brought the fever with them when imported, is discussed. "It is a common error," the editorial runs on, "to confound the African fever with yellow fever; they are as distinct and different as the country fever of Charleston, the congestive fever of Mississippi, and the Chagres fever of Central America are from veritable yellow fever, such as now prevails in New Orleans." That the condition was one wherein a discussion of the kind was to the purpose is evidenced by the three months' report of interments in the cemeteries, 5,032 deaths from yellow fever out of a total of 7,247.

The editorial in question takes notice that the slaves when shipped are of course fine specimens and in good health, otherwise it would be a waste of money to transport them, and presumably acclimated and inured to African diseases, while their quick deaths after arriving in this country suggests a local cause. Forty days being the shortest passage from Africa to New Orleans, and with a fever so contagious as is yellow fever, it is argued that "every soul on board would be stricken if it were on shipboard at the start."

"But it is a notorious fact," concludes the editor, "that the fever breaks out only on the approach of the slaver to our shores. Hence it would appear that our own atmosphere contains the elements necessary to vigor and life of the contagion, even admitting the hypothesis that such contagion may be brought by ships."

These were dark days in the Southern cities with the dreadful fever in New Orleans. A sympathetic editorial notes the progress of the plague. "Still onward stalks the direful pestilence in New Orleans," it begins. "Every day seems to give it new



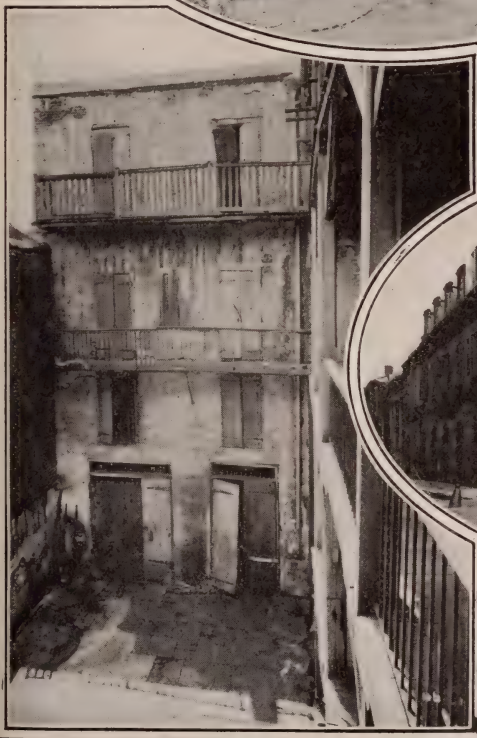
IN THE VIEUX CARRÉ



OLD COURT YARD



UNDER THE WISTARIA



OLD SLAVE HOUSE



CABILDO AND CATHEDRAL

strength and vigor. Increased victims seem to sharpen rather than glut its appetite. It leaps over all barriers and spurns all opposition. It levels alike the lofty and the lowly, the rich and the poor, the votaries of vice and the followers of virtue, the ignorant and the imprudent, the gifted and the strong—all alike are swept away and gathered into the common harvest of death." For the week ending August 14, 1853, the number of victims was 1,369, the current week promised to be equally large in its figures and the total of the month was thought to be such that it would make it forever notable in the annals of the city. Comparative figures with the great plague of London showed that out of 500,000 the plague slew 60,000 in a year, while the New Orleans fever was taking 4,000 a month out of a total population of not over 80,000 and "a population liable to the disease of not over 30,000."

By the first of September there were symptoms of abatement, August 31 having 110 deaths, as against a daily rate of 200 to 250 deaths earlier in the year. In the editorial statement that sets forth this fact there is the caution, "We again advise our friends to be watchful and prudent—the wind, in its present quarter, northeast, is a great encourager of yellow fever; keep out of its influence as much as possible, and sleep with your windows down."

It should be remembered, however, in reading this advice, that it was before the days of screened houses, and open windows really meant a means of access for the germ-bearing mosquitoes.

By September 22 the number of victims to yellow fever was less than the figure for other causes. The hope at that time was for "an early and heavy frost, which shall extirpate all vestiges of the late pestilence and render the air wholesome, bracing and healthy."

One must not forget that in 1853 the well-rounded health city departments that are to be found on every hand today, had not had their beginnings. It was a time when Boston had a normal smallpox rate of fifty to sixty cases a year with occasional years of a couple of hundred. The great outbreak with its thousand deaths from this disease which was the virtual starting point of the Boston Health Department was in the early seventies, or twenty years later than the time referred to in New Orleans. But in the fifties the Southern city had already in operation its municipal board of health. There have been some interruptions to its continuous functioning, but it did exist, and its importance was strengthened by the yellow fever outbreaks in the education that these even then gave to the people.

One evidence of the simplicity of public health arrangements in the early fifties is to be judged from the fact that the daily announcements of mortality during the outbreak in New Orleans were in terms of interments in the different city cemeteries. The weekly reports likewise were compiled from the same sources, it being apparently the case that certificates were there secured which are usually now given out from some central registry office.

The stickler for classification of causes of mortality will be interested in that of these older days. The larger groups were styled, epidemic, endemic, monoxysmal, uncertain seat, nervous system, respiratory, circulating, digestive and locomotive systems as separate sections; and besides old age, still-born, casualties, exopathic and esopathic. Tetanus and lockjaw appear in the list together as separate maladies. The exopathic victims are put with directness, one of the lists reading: "stabbed, one; suffocated, one," while the esopathic victims, two, are credited to delirium tremens. There are concessions to the large French population in such causes as Souff. du Cerveau, mal au machoir, and affection pulmonique, while the whole listing is a study in the evolution in vital reports.

In the midst of the dreadful week of August 21, 1853, "Citizen" writes to his newspaper in New Orleans suggesting a campaign of cleanliness and notification, combining with this what was inseparable in the earlier days,—charity. "Allow me to make a few suggestions," the letter begins, "which if carried out would be of great assistance to the Board of Health and the Howard Association, and enable the needy in all parts of the city to receive prompt aid, save many lives and aid vastly in ridding

the city of ostensible causes of disease." He goes on to outline a plan of volunteer inspectors, one at least to each side of every block of every street, who shall report the needy, the sick, take subscriptions, see that no nuisance is permitted to remain and "see that tar is burned every night and chloride of lime is distributed in all confined places, outhouses, etc." The further suggestion is made that it is of little use for ten or a dozen to clean their premises if the neighborhood remains dirty. "To have a clean city the whole population must act," is the concluding phrase of this New Orleans man in advance of his times, who put his finger sixty years ago on the nub of the whole question, and outlined matters like notification and the associated charities that are a vital part of the programme today. He was a pioneer of whom New Orleans may well be proud.

The visitor to New Orleans with his fellow members of the A. P. H. A. will find that the city and the state have lost not one whit of their old-time interest in public health. There are some handicaps, for where there is a negro population or a large foreign one, there is a distinct health risk. But New Orleans has taken up the major problems of health betterment with spirit and good sense. The enormous work in the fight against the plague has remodelled certain sections of the city where splendid rat-proof mercantile structures now prevail. It has gone steadily at the problem of malaria conquest and with success. It has vigorously attacked its mortality rate with the result that the past seventy years has seen a decline from 50 to 60 per thousand of population, till in the decade ending in 1909 the figure was 21, and in the intervening years it has been still lower, mounting again, in common with all the cities of the country, on account of last season's influenza.

The record of New Orleans in the improvement of its own health is notable. The record for hospitality has suffered no decline. The citizens know well how to entertain their friends, and preparations are on foot to make the visitors of the A. P. H. A. acquainted with the beautiful city in such fashion that they will not cease to talk of it in after years.

New Orleans in its picturesqueness, its health story and its welcome to visitors calls for a record meeting, one worthy numerically of representing the great national health association that is to assemble there.

The city is indeed well described in its aspects of gaiety and seriousness in the apt stanzas of Berton Braley in a recent *Saturday Evening Post*, which run thus:

NEW ORLEANS.

Dark, languorous, with heavy-lidded eyes
That glow and smolder with a constant fire,
She stirs men's hearts with glorious desire
By glances turned upon them waywardwise;
She is incarnate carnival; she plies
Her cavaliers with wine of mystery;
Under her mask they know not what there lies,
But linger, rapt, enchanted, till they see.

No disillusion greets them when she lifts
That dainty mask, for she is fair and kind.
But take her not for one who idly drifts
Through lazy days with purpose undesigned,
For though her eyes are warm, and warm her lips,
Her brain is building towers, ports and ships!

Why not set down that idea that is in your head about the device for the A. P. H. A. insignia? Send it today. You may get a prize. See June Journal, page 527, for particulars.

ASSOCIATION NEWS

HELP EMPLOYMENT BUREAU.

In order to help relieve the shortage of sanitarians, free help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Full-time, registered nurse for Venereal Disease Clinic in North Carolina. Salary to start, $100 monthly. Address L. E. C., No. 255, care of this JOURNAL.

Young physician for county health work in South Carolina. For information write Dr. L. A. Riser, 1013 Palmetto Building, Columbia, S. C. (H. E. B No. 202).

In the south, three County Directors for full-time rural health work, Annual salary $2,400 and necessary traveling expenses. Young physicians, thoroughly prepared in preliminary and medical education, preferred. Address H. E. B. No 276. care of this JOURNAL.

Full-time health officer for executive head of Health Department in North Carolina. Graduate public health man or trained ex-war sanitarian with laboratory knowledge preferred. Salary $2,000 per year or more if specially adapted. Address H. E. B. No. 258, care of this JOURNAL.

Public health nurse wanted for Marion Co., Kansas. Salary $100 per month and traveling expenses. Address Dr. J. J. Entz, Hillsboro, Kansas. H. E. B. No. 261.

In West Virginia, an experienced laboratory worker for making Wassermann tests, etc. Address H. E. B. No. 262, care of this JOURNAL.

In Missouri, two assistants trained in bacteriology. One to do Wassermann tests and other serological manipulations; and one with training in the prevention of venereal disease, to assist in course in hygiene for the training of teachers. Salary $2,000 and $1,800 per year. Address H. E. B. No. 264, care of this JOURNAL.

Research worker, experienced and proficient in bacteriology and serology for an investigation which will continue for at least two years. Salary $2,500. Address No. 266 T. J. C., care of this JOURNAL.

The City of Portsmouth, N. H., Board of Health desires a graduate nurse with public health training. Salary $100 per month. Excellent field for the right person. Address J. W. H. No. 268, care of this JOURNAL.

Public health nurse in Oskaloosa, Iowa. Salary $1,200—$1,500 per year according to qualifications and ability. Address W. E. M. No. 270, care of this JOURNAL.

ASSOCIATION INSIGNIA.

A number of replies have been received at the secretary's office in answer to the prize offer for designs for Association insignia. This is a matter that ought to be of wide interest. The details are given in the July JOURNAL, page 527, and any member of the Association may have the rare opportunity of furnishing the design for the official seal and other insignia of a great national institution. The offer remains open till September 1.

MEMBERSHIPS.

The influence of the drive for new members has by no means passed away, and is, and will continue to be, a factor of importance in the progress of the Association. The total of new members admitted between the middle of March, the time when President Frankel's letter was sent out, and July 26 was 957. Of the members who have been very active in persuading their fellows to join the Association Dr. J. A. Kappelman is first, and is continually increasing his lead, having now 60 new members to his credit. Of those in the list of 10 or more, Mr. Mayo Tolman has increased his number to 16. A new comer into this field is T. Eben Reeks, M. D. of New Britain, Conn., who at a recent meeting of the health officers in his state was exceedingly successful in presenting the advantages of the A. P. H. A. Altogether Dr. Reeks has sent 45 names, and subtracting those that were registered at the meeting leaves at least 14 that have been due to his personal effort alone. Such workers are an example to their fellows and give evidence that there are many men in every locality who would be likely to join if the matter were brought to their attention.

HOW THEY DID IT.

In the *News Letter* for June the story is set forth of how Dr. J. A. Kappelman succeeded in securing 40 (now 60) new members for the Association. A number of letters have been sent to the men having the highest scores in the campaign for members, with the idea that there might be gained in this way some insight into an effective manner of presenting the advantages of membership. Dr. Kappelman's answer divulged a basis of confidence in his object and in himself. He had clear reasons to set forth why it would be of advantage to join the A. P. H. A., and he was able to state them so straightforwardly that more than half a hundred of his friends yielded to them.

Mayo Tolman of Charleston, W. Va., writes that he is a member of eight or ten national organizations and has found that no one of them offers service or material of a value equal to that offered by the American Public Health Association. The money invested has brought a better return than any expended in any other way. "So firm a believer am I in the power of this association to do good," he writes, "that I am willing, in fact, I am anxious, to give all the personal service of which I am capable. Entertaining such an attitude of mind it is a very simple thing to go to a man and persuade him to join the organization. You do not have to say a single thing that you do not absolutely believe, in order to praise the Association. There must, *perforce*, be a ring of genuineness in one's voice that will impress itself upon the listener.

"With me the argument outside of the actual, tangible advantages of personal character, have been largely those of patriotism. I have called prospective members' attention to the deplorable health conditions revealed by the draft, and how special appeals have been sent out by the offices of the Army, the Navy and the Public Health Service, that conditions contributing to such ill health be removed."

Mr. Tolman sounded the praises of the JOURNAL to his "prospects," as the final argument, noting that it is one of the best, if not indeed the very best, agencies for keeping in touch with advances in public health.

Mr. Willard E. Ward, Agent of the Board of Health of Brookline, Mass., replies in this fashion: In obtaining members for the A. P. H. A., I had in mind the value of my association with the organization, the necessity as a committee member of seeking information outside the Association from leaders in lines of endeavor associated with public health control, and my duty as a public health official to do my "bit" towards building up and broadening out an association of such value to the nation.

I extended the invitation only to those whom I knew would make good members, and to such persons it was necessary only to set forth the objects of the Association and the benefit accruing to themselves in being identified with it. This is emphasized by the fact that of the persons interviewed, 83.3 per cent responded. I am proud of the personnel of these new members, each one of whom is a man of broad vision and intimately connected with public health activities. I feel that we should be even more zealous to have our new members measure up to the high standard already established.

Dr. W. H. Robin of New Orleans answers the question in this way: "Getting members is not so difficult after all. My experience shows it to be merely a case of 'popping the question.' Though there are no statistics available to prove it, I believe there are as many men willing to say 'yes' to a membership proposal in the A. P. H. A. as there are girls to say 'yes' to the right man in a marriage proposal.

"I am glad to see the membership list shooting upwards. It wouldn't surprise me in the least to see it speed up faster, as American Public Health is the greatest asset of our country today, and a good way to show appreciation of this is by becoming a member of the A. P. H. A."

⚜

A Word about Dr. John A. Kappelman.—Every one who has kept track of the drive for membership, and who has taken note of the remarkable record of Dr. John A. Kappelman (60 new members up to July 26th, 1919), will be interested in some facts with reference to this energetic worker. His present position is that of District Health Officer, Illinois State Department of Health, with headquarters at Springfield, and activities taking him all over the state. He has progressive notions, however, and is quite ready to move up to higher stages in his profession.

Dr. Kappelman, not yet forty years of age, is a product of the Evanston, Ill., schools; a graduate with the degree, B. S., of Northwestern University, class of 1903; and a physician with his degree of M. D. from Northwestern University Medical School conferred on him in 1907.

For a year following graduation Dr. Kappelman was an interne and staff attendant at the Cook County Hospital, Chicago; and then he entered into the practice of his profession—eight years at Evanston and one at DeKalb—and at the end of that time into the service of the Illinois State Department of Health, a position secured by competitive examination before the Illinois Civil Service Commission.

The past two years Dr. Kappelman has been District Health Officer in Illinois, broken by seven months of absence for military service. The latter included experience as assistant camp surgeon, with the rank of captain, at Camp Dodge, Iowa, while during the influenza outbreak he was chief sanitary officer at the base hospital of this camp.

His experience in state work has been along the lines of diagnosis and epidemiology of communicable disease, organization of community health service, emergency relief work, laboratory work, child welfare campaigns, school medical inspection, dairy inspection, occupational diseases, etc.

One can realize now how it was that Dr. Kappelman was so successful in securing members, for he had a sympathetic line of attack on his "prospect," no matter what might be the special occupation of the latter.

LIST OF NEW MEMBERS

PROPOSED FOR ELECTION TO THE

A. P. H. A.

FROM JUNE 25 TO JULY 21, 1919.

Sponsors	—and—	The New Members Whom They Introduced
(States arranged in alphabetical order)		
GEORGE E. MARQUIS, Quebec, Can.		C. R. PAQUIN, M. D., Quebec, Can. Director, Bd. of Health
MAURICE M. SEYMOUR, M. D., Regina Saskatchewa		F. JOHNSTON, M. D. C. M., Perdue, Saskatchewan
W. W. BIERCE, Torrington, Conn.		H. B. HANCHETT, M. D., Torrington, Conn. Health Officer
T. EBEN REEKS, M. D., New Britain, Conn.		G. N. LAWSON, B. A., M. D., Middle Haddam, Conn. Health Officer.
		F. B. BRADEEN, M. D., Essex, Conn. Health Officer
		C. S. HURLBUT, Rockville, Conn. Health Officer
		W. B. BEAN, M. D., Rockville, Conn. Health Officer
		DAVID A. FOX, M. D., Clinton, Conn. Health Officer
		HOWARD T. FRENCH, M. D., Deep River, Conn. Health Officer
		J. BANKS JONES, Andover, Conn. Health Officer
		A. L. HURD, M. D., B. S., Somers, Conn. Health Officer
		C. E. BUSH, M. D., Cromwell, Conn. Health Officer
ARTHUR LEDERER, M. D., Washington, D. C.		IDA A. BENGTSON, S. M., Washington, D. C. Bacteriologist, Hygienic Lab., U. S. P. H. S.
ROBT. E. NOBLE, Washington, D. C.		LLOYD L. SMITH, Base Section No. 5, A. P. O. No. 716 Colonel, M. C.
THOMAS PARRAN, Jr., M. D., Washington, D. C.		CARL JOSEPH HARRIS, M. D., Washington, D. C. Asst. Med. Advisor, U. S. Bureau War Risk Ins.
HARRY W. REDFIELD, Ph. D., Washington, D. C.		GEORGE G. DeBORD, M. S., Washington, D. C. Bacteriologist
M. F. HAYWOOD, M. D., Atlanta, Ga.		GRADY A. LEE, Atlanta, Ga. Laboratory Asst., State Bd. of Health
C. ST. CLAIR DRAKE, M. D., Springfield, Ill.		THOMAS J. BROPHY, Springfield, Ill. State Dept. of Public Health
JOHN A. KAPPELMAN, M. D., Springfield, Ill.		A. J. CLAY, M. D., Hoopeston, Ill. Health Officer
		O. P. KLOTZ, M. D., Hoopeston, Ill.
		W. R. ROBERTS, M. D., Cissna Park, Ill. Health Officer
		D. A. SMITH, Cissna Park, Ill. Supervisor, Fountain Creek Township
		R. F. VanDoren, M. D., E. Lynn, Ill. Health Officer
		H. P. MOULTON, M. D., Petersburg, Ill. Health Officer
		A. D. MILLER, M. D., Sullivan, Ill. Mayor
		J. F. LAWSON, M. D., Sullivan, Ill. Health Officer
		W. P. DAVIDSON, M. D., Sullivan, Ill.
		S. W. JOHNSON, M. D., Sullivan, Ill.
		G. B. KESSLER, M. D., Sullivan, Ill.
		S. M. BLUNK, M. D., Virden, Ill.
		H. E. BALDWIN, M. D., Sidell, Ill. Health Officer
		F. N. ODBERT, M. D., Indianola, Ill. Heath Officer
		J. M. HICKMAN, M. D., Westville, Ill. Health Officer
JOHN DILL ROBERTSON, M. D., Chicago, Ill.		WM. H. BARTON, Chicago, Ill. Supt., Washingtonian Home
RUTH McNARY SMITH, B. S., Ames, Iowa		ESTHER REBOK, Marshfield, Ore. Iowa State College
WILLIAM REASNER, M. D., Leavenworth, Kans.		HARLEY J. STACEY, A. B., M. D., Leavenworth, Kans. Teacher, Training School for Nurses
MAX J. COLTON, Cumberland, Md.		MABEL HEAD, Cumberland, Md. Public Health Nurse
		MAY K. STEINER, Cumberland, Md. Public Health Nurse
		HARVEY H. WEISS, Cumberland, Md. Milk and Food Inspector
H. E. BERGER, Jr., Wellesley, Mass.		THOMAS F. HARRIS, Belmont, Mass. Agt. Belmont Board of Health
CLARENCE D. HART, W. Somerville, Mass.		EDGAR QUIMBY BULLOCK, M. D., Wilmington, Del. Member State Board of Health

E. CLAIR TURNER, Cambridge, Mass.

JOHN F. WINCHESTER, D. V. S., Lawrence, Mass.

ARTHUR W. HEDRICH, Boston, Mass.

GEORGE T. BUCKELL, A. M., Houghton, Mich.

JOSEPH GERKINS, M. D., Ironwood, Mich.

H. T. G. NAUMANN, M. A., Port Huron, Mich.

WATSON FRANK WALKER, Detroit, Mich.

C. A. ABELE, Jackson, Miss.

W. C. MATTHEWS, M. D., Butte, Mont.

ALBERT F. STEVENSON, Ridgewood, N. J.

WILLIAM G. BISSELL, M. D., Buffalo, N. J.

ROBT. S. BREED, Geneva, N. Y.

FRANK J. OSBORNE, Tuckahoe, N. Y.

MINNA MARY ROHN, M. D., Bolton, N. Y.

EDWARD S. GODFREY, JR., Albany, N. Y.

PROF. BURT R. RICKARDS, Albany, N. Y.

LUCIUS P. BROWN, New York City

LEE K. FRANKEL, PH. D., New York City

E. H. LEWINSKI-CORWIN, PH. D., New York City

CARL E. McCOMBS, M. D., New York City

ENRIQUE E. ECKER, PH. D., Cleveland, Ohio

WM. H. GOULD, Cleveland, Ohio

GAIUS E. HARMON, M. D., and NORRIS P. BRYAN, Cleveland, Ohio

RUTH WEST, M. S., Glenolden, Penn.

ELLEN A. STONE, M. D., Providence, R. I.

ENNION G. WILLIAMS, M. D., Richmond, Va.

CHARLES E. GABEL, B. S., PH. D., Charleston, W. Va.

MAYO TOLMAN, Charleston, W. Va.

EDITH M. BECKNELL, R. N., Bangor, Maine Public Health Nurse

ACHSA A. DORSEY, R. N., Newington, N. H. Industrial Nurse

JUNE RIDEOUT, R. N., Bath, Maine Public Health Nurse

WILLIAM HORACE HOSKINS, D. V. S., New York City, N. Y. Dean of N. Y. State Vety. College, N. Y. Univ.

C. E. PADELFORD, M. D., Halley, N. Y. City Health Officer

HENRY L. K. SHAW, M. D., Albany, N. Y. Director, Div. of Child Hygiene, N. Y. State Dept. of Health

PHILIP D. BOURLAND, M. D., B. S., Lake Linden, Mich.

NATHANIEL ARTHUR BAILEY, B. Sc., Ironwood, Mich. Chemist & Bacteriologist

CHARLES W. HAENSEL, Port Huron, Mich. Manager, Chamber of Commerce

PAUL RACHAEL, Detroit, Mich. Chairman, Welfare Bd., Burroughs Add. Machine

CYRUS MARTIN SHIPP, M. D., Water Valley, Miss. Chief Sanitary Inspector

R. C. MONAHAN, M. D., Butte, Mont. Surgeon

JOHN C. BAKER, PH. D., M. A., Ridgefield Park, N. J. Chemist

FREDERICK C. PETERSON, Long Island, N. Y.

JAMES WILFORD KELLOGG, Geneva, N. Y. Bacteriologist

H. SHERIDAN BAKETEF, A. M., M. D., New York City Prof. Preventive Medicine and Hygiene, L. I. Coll. Hospital

EDWARD H. MARSH, M. D., Brooklyn, N. Y. Consultant, Bureau Venereal Disease, State Health Dept.

CHAS. D. KLINE, M. D., Nyack, N. Y.

MRS. EDITH J. MITCHELL, New York City. Social Worker

C. R. HERVEY, M. D., Oswego, N. Y. Sanitary Supr.

MYRON M. METZ, M. D., Williamsville, N. Y.

EDWARD GOODWIN, M. D., New York City Sanitary Supr., Jewish Agr. & Ind. Aid Soc.

CLAUDE L. PEAKE, Niagara Falls, N. Y. Industrial Secy., Y. M. C. A.

GEORGE E. ATWOOD, Hoboken, N. J. Capt., M. C., U. S. A.

WERNER HILTPOLD, M. D., Easthampton, Mass.

JAMES M. DAY, B. S., M. D., Hoboken, N. J. Major, San. Division M. C., U. S. A.

HERALDS OF LIBERTY, Philadelphia, Penn.

PARKE C. SICKLER, M. D., Wilkes-Barre, Penn. Medical Director, Heralds of Liberty

ROBERT J. CARLISLE, M. D., New York City Pub. Health Com., N. Y. Acad. of Med.

SIDNEY G. DAVIDSON, Memphis, Tenn. Supt., Baptist Memorial Hospital

L. WALLACE POTTS, M. D., B. S., Cleveland, Ohio

MARVIN D. SHIE, M. D., Cleveland, Ohio Asst. Surg., U. S. P. H. S.

LOUISE SITZENSTOCK, Cleveland, Ohio Asst. Director, University District, Pub. Health Instructor

CECILIA A. EVANS, Cleveland, Ohio Asst. Prof. of Public Health Nursing, Western Res. Univ.

ELLEN DRYDALE NICELY, R. N., Cleveland, Ohio Instructor, University District

H. O. WAY, M. S., Cleveland, Ohio Bacteriologist

WM. F. ROBERTS, M. D., Cleveland, Ohio Director, Physical Education, Central Y. M. C. A.

EDITH REYNOLDS DUNN, S. B., Glenolden, Penn. Bacteriologist

ELIZABETH M. GARDINER, M. D., Providence, R. I. Director of Child Welfare Div. for R. I.

JANE B. RANSON, Richmond, Va. Director, State Bureau Public Health Nursing

T. A. BORRADAILE, Charleston, W. Va. City Chemist

J. LOYAL GILBERT, Parkersburg, W. Va. Mayor

MRS. JEAN DILLON, R. N., Charleston, W. Va. Director, Div. Child Hygiene and Pub. Health Nursing

BOOKS AND REPORTS REVIEWED

A Text-book of Practical Therapeutics. *Hobart Amory Hare, M. D., B. Sc., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; One-time Clinical Professor of Diseases of Children in the University of Pennsylvania; Surgeon, U. S. N. R. F. Seventeenth Edition. New York and Philadelphia: Lea and Febiger. Pp. 1023. Price $5.50*

When a work of this character reaches its seventeenth edition, there is sufficient evidence in that fact alone to demonstrate its value. The present edition closely follows the previous one of 1916 in arrangement and substance, with certain important additions. The chief developments of the war which have relation to the field covered by the book are outlined, including the method of Carrel and Dakin for the treatment of wounds, and the paraffin method of treating burns. Intravenous injection and transfusion are discussed in much more detail than in the previous edition. Concordant with the apparent trend of the times the claims for alcohol are more conservative, though even in this work they would be considered extravagant by many.

It is to be regretted that the revision was made too early to summarize the expression of the medical world in regard to the treatment of influenza during the recent epidemic. Some readers will doubtless feel the lack of any bibliography in this as in the previous editions.

The work is divided into two principal portions. The first deals with drugs and other remedial measures arranged in alphabetical order, while the second considers the more important and common diseases, (likewise in alphabetical order), to the extent of the treatment that is indicated.

This volume, while by no means a complete work of reference, and in fact containing occasional rather remarkable omissions, has such a good arrangement, such a careful index and such a readable style that it will prove a popular work both for the student and the busy practitioner. *B. E. R.*



Rural Child-Welfare Series. *Rural Children in Selected Counties of North Carolina. Frances Sage Bradley, M. D., and Margaretta A. Williamson. Pp. 316. 1918. Washington: Children's Bureau Publication No. 33.*

The central idea of this survey was to secure information as to the rural child, his surroundings needs and opportunities.

The object is avowedly: (1) to stimulate interest in the task of the education of mothers to methods of improving the conditions of their children; (2) to demonstrate the value of periodic examinations and the supervision of young children, and (3) to stimulate local authorities to various forms of follow-up work as outlined by the conference, involving recognition of the value of the visiting nurse, instruction in wholesome means of relaxation and diversion; prenatal care and assistance at confinement as a means of preventing the present high maternity mortality, and other considerations.

The North Carolina rural problem is so typical that this work though apparently local has a distinct bearing upon similar conditions throughout North America. *May Bliss Dickinson, R. N.*



A Laboratory Manual of Elementary Qualitative Chemical Analysis. *For students of Medicine, Dentistry, Pharmacy and Science. A. R. Bliss, Jr., Ph. G., Ph. Ch., A. M., Phm. D., M. D. Professor of Pharmacology, School of Medicine (Atlanta Medical College), Edory University; Formerly Professor of Chemistry and Pharmacology, Graduate School of Medicine, University of Alabama, and in the Birmingham Medical College Schools of Medicine, Dentistry and Pharmacy, and Dean of the last. Second Edition, revised. Philadelphia and London: W. B. Saunders Company. Pp. 194. Price $2.25.*

By the elimination of blank pages for equations, and other minor changes, this edition has been made more compact than the first. It is noted in the preface that the Textbook Committee of the National Association of Dental Faculties has recommended it as the required text for Qualitative Analysis.

The book presupposes a knowledge of the principles of elementary chemistry. In the introduction there is an excellent elementary exposition of the subject of ionization. There is also a very good chapter on the analysis of an unknown, which did not appear in the first edition.

The subject of qualitative analysis proper is presented in a fashion comparable with that of other standard works on the subject. The general arrangement and style indicate that the manual will serve well the purposes for which it is intended.

B. E. R.

A Plan for a More Effective Federal and State Health Administration. *Frederick L. Hoffman, LL. D., Newark, N. J.:* Prudential Press.

This heading will sufficiently serve to direct attention to the very comprehensive and on the whole satisfactory review of "Health as a Function of Government" just published by F. L. Hoffman, LL. D., vice-President of the Prudential Life Association.

The reviewer knows of nowhere that more up-to-date information and sane discussion of the subject can be found than in this pamphlet. Dr. Hoffman has been trained in the school of comparative statistics and has shown a breadth of comprehension of principles, especially developed through considering health from the economic and commercial standpoint as an insurance man.

The pamphlet is especially satisfactory in the wide recognition it gives to public health as an evolution of the functions of government. He says:

"Much of what is called preventive medicine, even at the present time, is in the direction of prevention of further damage and harm rather than of a character deliberately designed to preclude the occurrence or inception of dangers which so frequently and practically continuously, threaten the individual and collective welfare in what, for want of a better term, is comprehended as the vast field of public hygiene."

The writer further well points out that:

"It may be said that instead of the individual of to-day being concerned chiefly in the efficient performance of an important but limited state function regarding himself or his family, the modern conception is rather the reverse in that the government or the state is profoundly more interested in the most successful adaption of each and every individual to his or her environment be that what it may be."

Then again it is stated:

"Under such a conception the modern health department would assume the functions of a general health administration concerned with all matters which affect the health and physical welfare of the people and not merely a function sustained almost exclusively by the police powers of the Federal Government of the State, and limited in its actual effective operation to a comparatively small, however supremely important, group of activities."

Turning to details Dr. Hoffman deals admirably with the need for a study of man in relation to health from the standpoint of "physical anthropology." He quotes from a Report to the British Government on physical deterioration which recommends:

1. The taking of periodic measurements of children in all schools and factories;
2. A registration of all cases of sickness; and
3. The adoption of wise measures for distributing information on such matters having a nation-wide bearing.

These considerations naturally lead to the question of a Ministry of Health, and the reviewer is especially pleased to find that Dr. Hoffman shows his keen appreciation of the remarkable breadth of purpose shown in Dr. Addison's "Ministry of Health Bill" just passed in the British House of Commons, and had he made his review a little later he would have made complimentary remarks on "The Federal Department of Health Bill for Canada" which has just become law.

The pamphlet next turns to "A State Medical Service" and points out most properly that while "existing state medical services are already quite considerable" their extension beyond police powers "should rest upon a totally different principle from that of the old laws, viz., the clear recognition of the duty of the state to afford the best qualified medical and surgical services to all those who are in need thereof even though they are unable to pay."

This admirably expresses what Sir Bertrand Dawson stated in the Cavendish Lectures in England last year,

(a) That much disease is preventable, and therefore, should be prevented;
(b) That every individual in the State has a right to receive when sick the best services which science can give.

The pamphlet then deals in an interesting way with the scope of federal, state and municipal police powers, and indicates their relations to one another.

In natural order Dr. Hoffman takes up what matters health administrations logically must include and places these under three divisions:

(a) General Public Health and Quarantine;
(b) Medical Practice and Physical Welfare and
(c) Statistics and Information.

All the practical problems are assumed to be included under one or other of these divisions; but the pamphlet indicates the further need for "Scientific Investigation and General Research." Obviously, it points out, no limit can be placed upon this work, since our advanced position to-day without question depends upon the knowledge which we have gained regarding disease since the days when Virchow and Pasteur laid broad through research the foundations of pathology and bacteriology.

Under several headings the pamphlet particularizes phases of public health, such as: (1) Housing and town planning; (2) States relations service, showing how federal and state work must be coördinated; (3) Communicable diseases; (4) Sanitary surveys; (5) Medical practice, pharmacy and dentistry; (6) Problems of anthropology; (7) Industrial hygiene; (8) Race pathology and tropical hygiene;

(9) Hospitals and institutions; (10) Public health and home nursing; (11) Mortality and morbidity statistics; (12) Methods of health education and military hygiene.

Several other paragraphs are devoted to administrative details such as compensation of health officers, advisory health councils, state health organizations and, finally the position which a state department should hold in a national government.

There is very little indeed, in the pamphlet which can be criticized from the standpoint of advanced public health thought and those who are especially interested in the evolution of health as a function of government will do very well to study carefully the subject from the broad viewpoint which Dr. Hoffman has taken. *Peter H. Bryce, M. D.*

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Bacteriology and Protozoölogy for the Use of Nurses. *Herbert Fox, M. D., Director of the William Pepper Laboratory in the University of Pennsylvania. Third Edition. (Thoroughly Revised). Philadelphia: Lea and Febiger. Pp. 222. Price, $1.75.*

No issue can be taken with the present day tendency on the part of bacteriologists and pathologists to publish their own guide of study as long as the scientific material is well presented. Dr. Fox's book fulfills this requirement. It contains sufficient detail for a clear, broad understanding of the subject. Many of the other available textbooks for nurses are mere "primers," and are far too brief to serve a useful purpose. The subject matter is discussed from the clinical as well as the strictly bacteriological standpoint. It was the author's intention to elucidate the question of how bacteria produce disease. Serologic and bacteriologic technic are not emphasized. The text is systematically covered in 15 chapters. The illustrations, of which there are many, are selected from a few well known textbooks on bacteriology. The fact that the book appears in its third edition speaks well for its popularity among the nursing profession. It can be recommended unqualifiedly. *Arthur Lederer, M. D.*

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Reclaiming the Wounded—A Handbook of Physical Therapy. *R. Tait McKenzie, M. D., Major, R. A. M. C., Professor of Physical Therapy, University of Pennsylvania. New York: The Macmillan Co. Price, $2.00.*

This is a well designed, well printed, well illustrated volume of one hundred and twenty-eight pages. It is written in a happy style, and contains no padding. It is practical throughout and shows on every page the wisdom of experience. It is preeminently a busy man's book.

Beginning with a concise consideration of the field of physical therapy as affected by the war with Germany, Major McKenzie discusses medical electricity, galvanism and ionization in wounds and scar tissue; the Faradic and high frequency currents; and muscle testing and exercising. Radiant heat and light, hydrotherapy, reëducation gymnastics and athletic games are discussed in practical detail. Interesting chapters are devoted to treatment by occupation and the masking of facial deformities. The book will prove of equal value to the military and industrial surgeon. *W. C. Rucker, M. D.*

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A Letter of Complaint.—Here is a real letter of complaint, which will serve to show health officers what their brother officers receive in their correspondence. The marks, ——, indicate deletions by the Censor:

Dear sir it does seem To me if You BOrd of Doctors Are Interested in The Helth And Sanitary Condition of —— As You Shoul We Migt Receive Some Benefit i Dont Believe i Hae Asked Anny thing But What is Reasonable As i Wrote And Told You in My Other Letter This Pool Of WAter is About 6o Feet Square And is In About The Center Of Our Town OF —— And Only About 75 TO 1oo, YArds From Main Street And Children Ride Around in This Pool Of Water In Chifts This Pool Has No Out let But Durin The Wet Season Of The Year This Pool is Supplied Or Fed By Suer Pipes Leading From A Swamp And Suer Pipe Also Drains Several Clossets And Emps The Contents into This Of Water, And This Stagnated Pool CAn Be Smelt For Quiet A Distance A Way ANd Has Turned Green This Pool Is On First Avnue Where Hundred Of People Pass It Daily

Now i Am Sening You A Bottle This Water ANd Simple Ask You To Anolize it And Then Act At Once As You Are Under Prmice To Do So

Yours Truly

—— ——

STORIES FROM THE DAY'S WORK

Brief stories of helpful experience are solicited.—EDITOR.

FAKERS IN A SOUTHERN STATE.

Twenty-eight years ago, a supposed doctor, a stranger in the village, asked me to help him perform an operation. His fee was $1,000, $400 cash. He offered me $10,000 a year to join forces with him, and could not understand my refusal. This was my first view of charlatanism. Ten years later this man retired with a princely fortune—he had cheated it out of the sick and poor.

One can hardly realize the types of men who have been on trial under a state law in Louisiana for quackery. One could hardly believe that men, whose appearance and whose practices were in keeping with the darkest days of ignorance and superstition, could make the people believe in them. One of these was Dr. "Pap," a negro, "who never failed to cure." He was very aged, some said nearly one hundred; he took whatever fee any one could offer, and in return gave his diagnosis and two bottles of greasy stuff, lard and cotton-seed oil with residue, in an old whiskey bottle. He attracted patients, both white and colored, even from across state lines, and when arrested it was against the protests of a number in his community.

Another colored quack was a specialist for treating "warm blood in the head," another was a "pill doctor," while a Chinese followed the business of curing by means of herb tea. One was a "dropsy doctor," another, "Zagalog," treated the scalp, an old colored woman could cure "child vision," while two Spaniards were in the lot, one of whom used garlic to remove a film from the detective's eye while Felesardo was "gifted by God with power to cure."

The faker has tremendous advantages. His professed cures and treatments appeal to one of the most deeply rooted of human instincts, the love of the mysterious. He has an optimism that appeals to the sick man; it gives him the kind of philosophy that he wants; it is satisfactory in that it gives hope, and it makes the invalid a willing victim.

SOUTHERN HEALTH OFFICER.

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A HINT TO HEALTH LECTURERS.

Dr. Powhatan S. Schenck, commissioner of Public Welfare of Norfolk, Va., tells this interesting little story about a lecture before a large negro congregation. He had been invited by the pastor to speak along health lines, and knew pretty well what to expect, for he had done such things before, but to his astonishment when he reached the church he was greeted by a packed house. He had, however, heard of the plan of Dr. Rankin in North Carolina, of lining up the churches in health work, and supposed that some of the effects had come across the border, and he knew that farther south there were public movements in which whole churches joined. He complimented his audience, therefore, on its interest and enthusiasm in public health work. It turned out, however, that the notification to his congregation by the preacher had been by word of mouth, and, before his announcement that the lecture would be on "Sanitation" reached the back of his church, the outstretched ears of the "brethren" had heard it "Sanctification" and, gossip spreading this idea, it being a subject dear always to the negro's heart, they came one and all to listen.

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BATHS ARE GOOD FOR HOGS BUT DANGEROUS FOR MEXICANS.

Quite recently, while making a series of sanitary inspections of Mexican camps throughout Los Angeles County in company with a representative from the State Housing Commissions, we found an exceedingly interesting illustration of the great need for supervision of sanitary appliances in order to get the ignorant to use them.

Several years ago we had jointly recommended, at a large labor camp, the installation of shower baths for the Mexican laborers. They seemed to be quite successful for a time, but owing to the pressure of other work the labor camp in question was not visited for quite a period.

At the time of the present story, we inquired very solicitously concerning the use of the shower baths. The manager took us to see them, and on our approach a most remarkable condition was disclosed. The Mexican in whose charge the shower baths were had converted the entire series of bath houses, with their beautiful concrete floors, into pig pens, and through the bars placed in the frame of the open doors jauntily stuck the noses of several clean pigs. At the time of our visit, in fact, two pigs were getting their daily shower bath. Naturally, we were not only amused but somewhat chagrined at finding this condition of affairs. On calling the Mexican, the latter said, "Cold water fine for pigs but h—l on Mexicans. Mexican no takem cold bath—pig likem good." Exit sanitary inspectors.

J. L. POMEROY, M. D.,
Los Angeles County Health Officer.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horowitz and Mayo Tolman.

North Carolina Adopts Law Regulating Insanitary Privies.—On February 24, 1919, the North Carolina State Board of Health adopted a new law regulating the use and supervision of privies. The law affects every community under 20,000 population and every farmer whose house is not more than 300 yards from his neighbor. It is specified that all privies shall be licensed and shall comply with the sanitary regulations of the State Board of Health regarding construction and maintenance if within 300 yards of the neighboring residence. It is provided that the inspectors and officers of the State Board of Health shall be responsible for the supervision over all privies and it is specified who shall be held responsible if insanitary privies are found. An insanitary privy will have its license revoked, and in its place a notice is to be fastened reading "Insanitary: Unlawful to Use." A penalty of $5 to $50 or imprisonment for a period not exceeding 30 days is fixed. Licenses will be issued at the rate of 40 cents per privy, the money being used to maintain the bureau of inspection and supervision. For this purpose a bureau of sanitary engineering and inspection will be organized and maintained to study and recommend the best type of privy for the geologic, sociologic, and economic conditions of a community, to supervise the construction and maintenance of the privies and to participate in other functions pertaining to the protection of the public health.—*Special Bulletin No. 171*, North Carolina State Board of Health, April, 1919.

(*M. P. H.*)

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Sanitary Conveniences for Cities.—The relation of personal cleanliness to the public health is a matter too frequently slighted. It is a duty of cities to provide public comfort stations so that the citizen may not be forced to retain harmful waste products in his system or else impose on private institutions such as hotels and department stores. Bathing and laundry facilities should be provided for even the poorest. Street drinking fountains should be conveniently located throughout congested districts. The health of an entire city can be directly affected by the cleanliness of any part of it.—*Ohio Health Journal.* (*M. T.*)

✻

Organization of Social Hygiene in Municipalities.—Adequate support for local organizations engaged in social hygiene is assured by a working agreement which has been made by the four principal national agencies concerned with the subject, namely, the United States Public Health Service, the Interdepartmental Social Hygiene Board, the Law Enforcement Division of the Commission on Training Camp Activities, and the American Social Hygiene Association.

These four bodies have created an informal Council of Four, to consist of one representative of each, and have agreed that all matters of local organization will be passed upon by the entire Council.

As a preliminary, one representative or more will be designated in each state, to survey all the cities and pick out the existing organization in each city that is best adapted to promote the interests of social hygiene. In most cases the representative who discharges this function will probably be an official of the state board of health.

In a city where there is no suitable existing organization, arrangements will be made to aid in the formation of one in case public sentiment seems to warrant such action.—*Social Hygiene Bulletin*, May, 1919. (*D. G.*)

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The Next Step in the Tuberculosis Movement.—Various experts on tuberculosis in England recently got together in a symposium to discuss the next step in the tuberculosis movement. The following include some of the suggestions made:—establishment of dispensaries, institutional care for early and advanced cases, farm colonies and after care, home treatment, improved housing, better milk supply, dental treatment, segregation of the incurable and quarantine of all infectious cases, care of the tuberculous soldiers and sailors, child conservation, a deeper interest by the medical profession in the economic and sociologic problems of their patients, open air schools for delicate children and general, wide-spread education.—Editorial, *Journal of Outdoor Life*, May, 1919. (*M. P. H.*)

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Prevent Diphtheria by Immunizing all Babies.—Abram Zingher of the New York City Health Department has outlined what appears to be a practical method of immunization against diphtheria. He would have all babies under twelve or eighteen months of age immunized by injections at one week intervals of three successive doses of 10 cc. each of toxin-antitoxin. For older children he would apply the Shick test and immunize all found susceptible. The development of a reliable method of immunization should save some of the 23,000 lives now exacted as a yearly toll by this disease.—*Ohio Public Health Journal*, January, 1919.

(*M. T.*)

Experimental Control of the Milk Supply of a Small City.—Geneva, N. Y., is a city of about 15,000 people and is supplied with milk from forty to fifty farms in the immediate vicinity. The milk is delivered to the city once a day so that the morning's milk is two to four hours old and the night's milk about fourteen to sixteen hours. The control of the milk supply has been under the direction of the New York Agricultural Experiment Station. The milk is delivered to two central distributing stations from which it goes to the consumer after it has been pasteurized. The pasteurization is so efficient that the bottled milk, as a rule, gives a count of less than 10,000 per cubic centimeter. The milk supply was controlled chemically, bacteriologically and through intelligent inspections. The bacteriological results were obtained by the microscopic method. The inspections took the form of demonstrations and really represented an educational campaign. No suggestion for a change was made unless analytical data were available to demonstrate its necessity. Efforts were also made to rule out those milks containing pyogenic streptococci. Out of 11,851 cans of milk that were examined, 345, or 2.91 per cent, showed the presence of long chain streptococci. Dr. R. S. Breed, who was in charge of the experiment, urges the sediment test in preference to the bacteriological test, as an index of dirt and foreign matter in milk. He maintains that the factors which produce a high bacterial count in milk are: 1, udders infected with streptococci; 2, poorly washed milk cans; 3, poorly sterilized milking machines; 4, improper cooling. Dust and dirt, in his estimation, affect the bacterial count per cubic centimeter but little.—*N. Y. State Jour. of Medicine*, April, 1919. (*M. P. H.*)

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Food Rationing and Nutrition.—The restriction on food through rationing and the use of substitutes for the staple articles of the diet, such as margarine for butter, does not result in an unsatisfactory condition of nutrition and an impairment of the general health. This is shown by some figures quoted by Dr. G. Rose in his annual report to the Aberdeen School Board. In a table giving heights and weights it is seen that Aberdeen children of five, seven and thirteen years of age in 1917–18 are much the same as those of the same ages in 1912–13. This report shows that the food rations have been sufficient in amount and in quality to keep school children in a state of health and nutrition equal to that of prewar times, so far as the experience of Aberdeen is any indication.—*Medical Officer*, March 22, 1919, 92. (*D. G.*)

Nutrition Clinics in Public Schools.—The fact that malnutrition is due only in a minor degree to poverty, to tuberculosis, to syphilis or to other obscure diseases, but in the great majority of cases is due to adequate causes such as physical defects, improper food habits, overfatigue and errors of home and school life, makes the work of correcting malnutrition for the greater part educational. Therefore such work should be carried on in the school, where health habits and practical hygiene can be taught as a part of the school program.

An experiment along this line, conducted in one of the New York City schools, demonstrated the great value of the class method of correcting malnutrition. The child was weighed each week and his weight charted. Then the probable reasons for gain or loss were discussed with the group, and suggestions made to help in the child's gain the following week. These suggestions had to do with the use of tea or coffee, food habits, the need of open windows, etc. As each child saw his own chart and recognized the reason for gain or loss, his coöperation was obtained in every instance. In addition, a half hour rest period was taken in the forenoon, and a similar one advised to be taken in the afternoon at home. Each child's home was visited by the nutrition worker with the object of obtaining the parents' coöperation in getting their children to gain, and of finding causes in the child's home life that prevented gain.

The results obtained were remarkable, for these children who had been given instructions in health habits, and for some of whom certain physical defects were removed, gained 25 per cent faster than the expected gain.—W. R. P. Emerson, *Amer. Jour. of Dis. of Child.*, April, 1919, 251. (*D. G.*)

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Mental Hygiene and the Public School.—The importance of a health examination of each child on school entrance is becoming more and more evident, for this is a strategic period in a child's life for a physical examination, and one at least as thorough and searching as that to which our millions of recruits were subjected. The examination should include the recording of important traits of behavior, qualities of mind, and irregularities of physiological and mental functioning, which will point to a reconstructive pedagogy during the career of the school child.

This matriculation examination must be supplemented with a period of observation which will not relax during the whole school career of the child, but which will be particularly intensive during the first year. In other words the child will be detained under a watchful semi-probationary régime which will discover and record his strength and his weak-

ness. It is apparent that there is need for the development of a new type of school nurse who, by supervision, corrective teaching, and home visitation, will further the concrete tasks of mental hygiene. Her clients would be the child with night terrors, the over-silent child, the stammerer, the extremely indifferent child, the pervert, and a whole host of unhealthily constituted growing minds.—A. Cesell, *Mental Hygiene*, Jan., 1919, 4. (*D. G.*)

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Housing and Infant Mortality.—Dr. Leonard Hill, director of the Department of Applied Physiology of the Medical Research Committee of England, in an address on the relation of housing conditions to infant mortality, brought out the following interesting points:

High mortality among infants was due to excess of respiratory and digestive ailments, particularly of the latter. Proper feeding was, then, of paramount importance. The rate of cooling of the body was closely connected with both causes of high infant mortality, for the cooling and evaporative power of the air acted not only on the skin, but also upon the respiratory membrane. Physiological research had proved conclusively that it was not the chemical impurity, but the physical conditions of close air, which made for discomfort and impoverished health. On the low cooling and evaporative powers, and want of open-air exercise, depended the ill health of sedentary workers, who dwelt in tenements, traveled in stuffy, crowded conveyances, worked in such schoolrooms or factories, ate in such canteens, and sought amusement in such cinemas. It was open air and exercise, plus good feeding, which had converted weedy citizens into robust soldiers, which restored the weakly in open-air schools and the consumptive in sanatoria.

Custom put the same or even more clothes on the town infant as on the rural infant. The people were traditionally brought up to fear the open air and seek a debilitating degree of warmth. The radiant heat of the sun and the invigorating, cooling, and drying power of the wind were the health factors of seaside and mountain resorts. These were kept out by high buildings and close courts. Mothers lost their children by seeking to save them by over-coddling and feeding. The one great need of a child was freedom to play in the open air untrammelled by and unnoticed by his elders. The child of the well-to-do was tied to the apron-string of a nurse, its wonderful body, the fruit of nature's workshop through ages of evolution, was sacrificed to the vagaries of fashion and vanity. Babies were smothered in cradles and prams; older children, when not coddled at home, were confined at school, open air exercise being barred to them on the slightest sign of wet or dark.—*Medical Officer*, April 26, 1919. (*D. G.*)

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Venereal Disease in United States Troops.—The following table presents the conditions of venereal disease in all troops in the United States by months, July, 1918–January, 1919, inclusive, as reported to the Surgeon-General on weekly telegraphic reports:

	July	*August*	*September*	*October*	*November*	*December*	*January*
Mean monthly strength	1,439,580	1,584,159	1,621,425	1,551,065	1,537,953	1,191,764	841,839
Total admissions	23,370	25,100	28,521	13,276	8,554	6,564	4,210
Annual rates per 1,000 of strength based on admissions per month	169.7	205.97	228.67	89.01	72.22	57.25	65.01
Approximate number of cases contracted before enlistment	20,331	23,924	25,954	11,949	7,262	5,432	3,283
Percentage of total admissions representing before-enlistment cases	87%	91.3%	91%	90%	85%	82.8%	78%
Percentage of total admissions representing after-enlistment cases	13%	8.67%	9 %	10%	15 %	17.2%	22%
Approximate number of cases contracted after enlistment	3,039	2,176	2,567	1,327	1,281	1,128	927
Annual ratio per 1,000 of strength based on after-enlistment cases of months	22.0	17.8	20.5	8.80	10.82	9.83	14.31

—*Social Hygiene Monthly*, March, 1919. (*D. G.*)

STATE HEALTH NOTES—LEGISLATION.

California.—In an opinion written by Justice Shaw, of the Second District Court of Appeals, the right of health authorities to isolate or quarantine persons afflicted with venereal disease has been upheld. The case arose over the refusal of a patient in a Los Angeles hospital to remain in quarantine. The patient was remanded to the custody of the health authorities. (*M. T.*)

⁂

Kansas.—On June 26 the Kansas State Board of Health amended the regulations for the control of venereal disease. These regulations now include a standardized form of procedure for health officers. Syphilis, gonococcus infection and chancroid are declared to be notifiable on account of their infectious character. Every person who knows himself to have one of these diseases is required to place himself under the care of a legally qualified practitioner of medicine, or shall report to the local or state health officer. Every physician or other person who treats an individual with one of these diseases is required to report it in writing to the State Board. In cities where regulations exist for the reporting of these diseases this notification to the State Board shall be through the local officials. The report may be by number provided the physician will assume full responsibility for the conduct of the person affected, and provided the person reports for treatment every seven days. Any person who suspects that his treatment is being unduly prolonged, or who may be threatened that his identity will be revealed if he discontinues treatment, may apply to the State Board for information and advice. It is required that the physician give to the patient a circular of instruction furnished or approved by the board, and to notify the board of the fact.

It is further required that in any city where the local regulations demand that the druggist report sales of venereal disease remedies, that the local health officer shall send forward the information to the State Board.

Regulations concerning occupations of infected persons are amended so as to include these items. No such person shall be employed in a public bathroom or swimming pool or barber shop. Proscribed occupations include that of nurse, nursemaid, domestic servant, barber, hair dresser, chiropodist, manicure, bath attendant, masseur or any other occupation in which the infection may be transmitted to other persons. No infected person may engage in an occupation which involves intimate contact with children, or the preparation or handling of foods, beverages, etc.

Infected persons may not take up residence in the state of Kansas, excepting upon written permission from the secretary of the board, and such permits may be obtained through the boards of health of the home city of such persons. Travel of such infected individuals is forbidden from one health jurisdiction to another excepting with a permit, and the same restriction applies in the case of removal from one portion of a health district to another. Permits will be issued only with the proviso that treatment shall be continued.

Other changes in the regulations provide for examinations of individuals, and their isolation, and inasmuch as prostitution is the most prolific source of infection, local health officers are empowered to use every means in suppressing the same.

Still another section of the new version of the regulations prohibits the common carrier from transporting infected persons not having a permit.

Two other Kansas regulations enacted on June 26 have reference to stillbirths and certificates. The term, stillbirth, shall be applicable to any delivery of a dead infant which has passed the twenty-eighth week of intrauterine life. Certificates of birth or death must be written plainly in black ink or with the typewriter.

⁂

Massachusetts.—The Maternity Benefit Bill has passed the Senate. This would enable the State Health Department to aid expectant mothers with incomes of $15 or under, needing assistance, by medical care including nursing, and, if need be, by a grant of money not exceeding $12 a week.

The School Hygiene Bill, which was to provide that every city and town shall employ a physician, a school nurse, a director of physical education and training, and that such may appoint a school dentist. This bill would promote the welfare of the school child and is a logical step in the development of public health in Massachusetts. It was lost.

⁂

Missouri.—At its last session the legislature enacted a law giving the State Board of Health authority to promulgate and enforce adequate rules and regulations for the control and prevention of communicable diseases. By this the board has been able to comply with the requirements of the Interdepartmental Social Hygiene Board and active coöperation was begun on July 1. The amount of the allotment received by this state is $35,808.

A bill was passed by the recent legislature creating a Division of Child Hygiene in the State Department of Health. This law also gives the board general supervision and regulation of the physical inspection of public school children of the state. Another bill gives the State Board of Health supervision of the quality of water dispensed to the public.

STATE HEALTH NOTES—GENERAL.

Nova Scotia.—An exceptionally interesting and profitable meeting of the Association of Medical Health Officers of Nova Scotia was held at Antigonish on the 1st and 2d of July. Papers dealing with a variety of public health problems were presented and keenly discussed. Special contributions to the program were made by Prof. D. Fraser-Harris in a paper entitled "The Medical Profession as a State Service," and by Mr. A. B. Dawson in a paper entitled "Recreation as a Public Health Measure." Professor Harris' paper, which ably set forth the advantages of the state assuming responsibility of curative as well as preventive medicine, naturally attracted much attention. The Association is to meet next year at Kentville, where, conjointly with the Medical Society of Nova Scotia, special sessions on tuberculosis will be held at the Nova Scotia Sanatorium.

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California.—The Extension Division of the University of California is giving a course in eugenics in San Francisco. The course takes the form of fifteen lectures in which the following topics are covered: Problem of Human Evolution; Preliminary Survey of the Field; The Laws of Heredity; The Transmission of Human Defects; Mode of Inheritance of Insanity, Feeble-mindedness and other forms of Mental Defection; The Inheritance of Mental Ability; The Hereditary Factor in Crime and Delinquency; The Decline of the Birth Rate; The Relative Birth Rates of Different Classes of the Population; Causes of the Decline in Birth Rate; Hereditary Influence of Alcohol and Disease; Natural Selection of Man; The Various Forms of Natural Selection among Human Beings; Racial Influence on Infant Mortality; War and the Race; An Estimate of the Different Ways in Which War May Modify Human Inheritance; Sexual Selection in Men, Its Past and Present Influence and Its Possibilities; Industrial Development and Racial Inheritance; The Elimination of Defectives; Sterilization and Segregation; Religion as a Factor in Race Development; Religious Selection Past and Present; The Present Trend of the Race; General Summary and Discussion of Various Forces Working Towards Racial Deterioration or Improvement. (*M. T.*)

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Colorado.—Hugh Forsythe Lorimer, M. D., formerly of Olney Springs, Col., has been appointed secretary of the Colorado State Board of Health, in place of Erlo E. Kennedy, recently deceased. Doctor Lorimer's duties began on July 15.

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Idaho.—Dr. Ernest E. Laubaugh, medical advisor in the Idaho Department of Public Welfare, has been appointed special venereal disease officer for that state.

Because of the fact that Idaho's legislature failed, in the closing hours of its recent session, to make an appropriation meeting the Federal government's anti-venereal disease grant, the State Department of Public Welfare has been forced to appeal to county boards of commissioners for funds. Idaho must raise approximately $3,600 in order to obtain the appropriation made the state under the Chamberlain-Kahn Act.

The Idaho public welfare department clashed recently with the mayor of the town of Nampa when that municipal officer refused to quarantine a smallpox case. After a jury trial the mayor was convicted on a charge of having failed to comply with department regulations and fined. It is believed that the case will have a wholesome effect on other communities.

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Illinois.—Through increased appropriations made by the General Assembly just adjourned, provisions have been made for the following additions to the staff of the State Department of Public Health: Assistant epidemiologist, two additional full-time medical health officers, and a statistical clerk for the Division of Communicable Diseases; supervising nurse for the division of tuberculosis; medical assistant and a general supervising nurse for the Division of Child Hygiene and Public Health Nursing; a chief of the newly created Division of Biologic and Research Laboratories; chief of the Division of Public Health Inspection; two junior bacteriologists for the Division of Diagnostic Laboratories; two sanitary engineers for the Division of Sanitation; farm sanitation advisor for the Division of Surveys and Rural Hygiene. There is a general increase in the clerical and stenographic forces of all divisions and particularly in the Division of Vital Statistics.

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Indiana.—The Indiana State Board of Health began its grand drive against venereal disease on July 1. On that date it came into possession of the $29,000 appropriated by the National government and also an equal sum appropriated by the state government. Dr. William F. King, director of the Bureau of Venereal Diseases, has laid broad and extensive plans for the fight.

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Kansas.—At the annual meeting of the State Board of Health, held June 26, 1919, Dr. Florence Sherbon of the University of Kansas was elected chief for the Division of Child Hygiene, *vice* Dr. Lydia Allen DeVilbiss, resigned, and Dr. B. K. Kilbourne as chief of the Division of Venereal Disease, *vice* Captain Millard Knowlton, resigned.

The Epidemiologist of the board, Dr. T. D. Tuttle, has inaugurated an anti-typhoid vaccination campaign in thirty-five counties in the state.

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Iowa.—Dr. Jeannette F. Throckmorton has been appointed, by the Iowa State Board of Health, state lecturer in social hygiene work among girls. She will work under the direction of the director of Bureau of Venereal Diseases.

On July 4th the Iowa State Board of Health welcomed the following new departments created by the 38th General Assembly as follows: State Housing Commission, State Plumbing Commission, Bureau of Venereal Diseases.

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Missouri.—A public health meeting of state-wide interest was recently held in Springfield, Mo. It was conducted through the efforts of the Missouri State Anti-Tuberculosis Society and the Springfield Chamber of Commerce, on completion of a health survey in Greene County.

The Missouri State Medical Association at its last session at Excelsior Springs unanimously endorsed a resolution to support the State Board of Health in the anti-venereal disease campaign.

The new Boone County hospital at Columbia has recently opened.

A new county hospital will soon be completed and put in operation by Audrain County at Mexico, Mo.

Ray County in the near future will vote upon a bond issue for a hospital in that county.

The county hospital plan is becoming popular and several counties expect to hold elections for bond issues for that purpose during the coming year.

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New Jersey.—The New Jersey Health Officers Association held a meeting at the Monterey Hotel in Asbury Park on June 26. Mr. R. S. Patterson of the State Board of Venereal Disease Control delivered an address in which he outlined the proposed plans for coping with the venereal disease situation in the state. Mr. James A. Tobey of the same bureau spoke on "The Legal Aspects of Venereal Disease Control." The health officers present discussed the matter and expressed themselves as favorable to the work and anxious to coöperate. The plan of the United States Public Health Service was also approved.

The health officers of Essex County, N. J., have formed a county health officers association. Sanitary inspectors and public health nurses will also be admitted to membership. The cities in the county include Newark, the Oranges, Bloomfield, Irvington, Montclair, Nutley, Belleville, and Glen Ridge. Dr. C. V. Craster of Newark is temporary chairman and Mr. W. B. Palmer, milk inspector of the Oranges, is secretary.

New York City.—The New York City Health Department has announced that after July 16 no narcotics can be obtained legitimately in New York except by those registered with the Health Department.

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New York State.—Meeting of State Health officers at Saratoga Springs.—About 600 health officials and 400 nurses attended the Eighteenth Annual Conference of Sanitary Officers and the First Annual Conference of Public Health Nurses of New York State, at Saratoga Springs, June 24–26. Excellent programs were presented. Provisions were also made for conferences of sanitary supervisors with the local health officers of their respective districts.

In conjunction with the foregoing meetings which were called under the auspices of the New York State Department of Health, there was also a meeting of the New York State Sanitary Officers Association. Among the speakers at this meeting was the secretary of the American Public Health Association, who extended an invitation to the New York State Association to affiliate with the A. P. H. A. He further suggested that the New York State Association consider the advisability of organizing local health societies and of coördinating the state forces which are at present interested in the promotion of public health. These suggestions were very favorably received and committees were appointed.

The following officers were elected to serve for the coming year:

President, Maj. William G. Bissell, M. D., LL.D., D. P. H., 484 William St., Buffalo, N. Y.

First vice-president, Guy E. Turrell, M. D., Smithtown Branch, Long Island.

Second vice-president, Charles D. Kline, M. D., Nyack, N. Y.

Third vice-president, Thomas E. Bullard, M. D., Schuylerville, N. Y.

Treasurer, Capt. George F. Mills, M. D., Oneida, N. Y.

Assistant treasurer, Myron M. Metz, M. D., Williamsville, N. Y.

Secretary, Maj. Montgomery E. Leary, M. D., Rochester, N. Y.

At a meeting held in Utica on June 16, representatives of the Committee on Hygiene of the Board of Education, the Child Welfare Board, Agency for Dependent Children, the Utica Dispensary, Camp Healthmore, the Baby Welfare Committee, Junior League and Day Nursery, the Red Cross, Associated Charities, the Utica Chamber of Commerce and the County Tuberculosis Committee voted to organize a Health Coördination Committee.

In the by-laws adopted the purposes of the organization are set forth as follows: "The coördination

of the health activities in the community, the promotion of public health education, the support of approved health measures, and coöperation with the local health authorities in the protection of public health and in meeting emergencies relative to public health. The committee shall consist of from five to twelve members and so far as practicable each shall represent an organization engaged in coöperating in public health activities. The local health officer shall be a member *ex-officio*."

At a meeting of the Saratoga County Medical Society held on Friday, June 13, at Arrowhead Inn, Saratoga Lake, Dr. J. S. Lawrence of the State Department of Health spoke on the Control of the Spread of Venereal Disease. Dr. J. C. Ayer discussed the importance of correct diagnosis of syphilis, after which he gave a demonstration of the administration of salvarsan.

According to Doctor Sheehan of Port Chester, the Board of Health of that community had decided that a venereal disease clinic should be opened in connection with the child welfare station.

Syracuse has opened a municipal venereal disease hospital and has placed Dr. A. J. MacGruer, who has recently returned from France, in charge of same. Doctor MacGruer has been associated with the dermatological department of the Free Dispensary, and is a very competent man in the diagnosis and treatment of syphilis. The new clinic will be used also as a detention hospital. When complete the staff will include a nurse, another medical attendant and a housekeeper.

A venereal disease clinic has been opened in Batavia within the last month with Doctor Carr in charge.

A resolution was passed by the city council of Oswego authorizing the establishment of a venereal disease clinic and appointing Doctor Calisch as the physician in charge.

As the result of a petition presented by more than 50 per cent of the property owners of the town of Islip, on Long Island, a garbage collection district has been established by vote of the town board. The contract which has just been awarded calls for the payment of $7,500 per year. The district comprises the unincorporated villages of Islip and East Islip and includes a population of about 3,000. The action was taken at the instigation of the Community Association and Dr. Frank Overton, sanitary supervisor.

The Essex County Chapter of the American Red Cross has voted to employ a public health nurse. Miss Lorraine Liebeck has been appointed community nurse for the town of Wheatland, Livingston County. Appropriations for public health nurses have been made at Fort Plain and St. Johnsville. Mount Morris is to have the services of a community nurse who will work under the direction of the town and village health officer. Miss Helen Cotter, R. N., of Utica has accepted the position of county tuberculosis nurse of Madison County.

At the recent tuberculosis clinic held at Malone on June 5, the examination of the chest of the patient was followed by the taking of X-ray plates, and the collection of sputum for bacteriological diagnosis.

The clinic was in charge of Dr. Stanley W. Sayer, sanitary supervisor, and Miss Bessie Lavier, Franklin County tuberculosis nurse. Dr. Fred H. Heise, superintendent of Trudeau Sanatorium, was in charge of the physical examination, and Mr. Homer Sampson of the X-ray work, the development of the plates being done at the Alice Hyde Hospital.

The following results were obtained:

Chest examinations	25
X-ray examinations	15
Positive diagnosis without X-ray	4
Positive diagnosis with X-ray	7
Total positive cases	11

Nearly one half of the positive cases were post influenzal.

At the laying of the corner stone and dedication of a new building at Letchworth Village early last month, a state institution for the feeble-minded, Governor Alfred E. Smith said that there are at least 33,000 defectives in the state and only about 5,000 are properly provided for. The governor and Frank A. Vanderlip, president of the Board of Managers of Letchworth Village, urged the speedy completion of this model institution which will eventually house 5,000 patients and be the largest of its kind in America.

"The care of the feeble-minded is of immense importance," said the governor. He declared that the program now being developed by the State Commission for Mental Defectives will "have an important bearing on the future well-being of the entire population of the State."

"New York many years ago," said Governor Smith, "was the pioneer in the care and treatment of mental defectives. Even though the state may have lagged behind other commonwealths in more recent years, the steps taken during the last six months go a long way to restore New York to her former enviable position." Every community has its quota of feeble-minded who are not receiving proper care."

Mr. Vanderlip called especial attention to the care with which the institution has been planned and constructed.

"From the start," he said, "there has been but a

single object in view, to build the best institution possible, to get the best possible type of men and women to manage it, and to give the best care and treatment to the children who are sent here, often for the term of their natural lives."

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North Carolina.—Community health work was emphasized together with the utilization of all local organizations at the Social Work Conference at the University of North Carolina Summer School the week beginning July 13. The program included the presentation by the State Board of Health of a number of health problems; the medical inspection of children question, on which subject Dr. G. M. Cooper, director of the work in the state, was the speaker; Child Welfare Work, which was discussed by Mrs. Kate Brew Vaughn, chief of the Bureau of Infant Hygiene; and on one evening the film, "Keeping Fit," was shown.

A total of 722 cases of venereal diseases were reported during June to the office of Dr. James A. Keiger, director in North Carolina for the State Board of Health and the United States Public Health Service, in their joint efforts to eradicate venereal diseases.

This is the largest number of cases reported for any month since the enactment of regulations requiring physicians to report these diseases, as well as others that are communicable. This does not mean that there were more cases in the past month, but rather that more nearly complete reports are being made. Both physicians and druggists are manifesting a keen interest in the work being done and are showing a fine spirit of coöperation.

North Carolina has now a privy law. It is framed so as to afford a man protection against the privy maintained by his neighbor. The closer the neighbor's privy, the greater the danger from it as long as it remains in an insanitary condition. For this reason the emphasis of the law is placed upon privies within 300 yards of where anyone lives other than the user thereof. This law is now in effect. It demands that every privy coming within these requirements be forthwith and immediately rendered sanitary. After October 1, 1919, the penalty for noncompliance will be applied.

In addition to this, the State Board of Health is conducting an extensive campaign for vaccination against typhoid fever, but these measures in no way conflict. They serve only to strengthen each other.

North Carolina has, among its many other health activities, undertaken a campaign in favor of the child of four, "often times neglected because of its inability to take care of itself." It has accordingly prepared a bulletin, entitled "The Child of Pre-School Age," which it is distributing among its citizens.

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Ohio.—At a meeting on Tuesday, June 24, following an informal earlier gathering, the Cleveland members of the American Public Health Association formed a local branch society, adopted a constitution and by-laws, and elected officers. The following is the result of the election: President, G. E. Harmon, M. D., assistant professor of Hygiene and Bacteriology, Western Reserve University; vice-president, E. E. Ecker, Ph. D., diagnostician, Division of Health, Cleveland, O.; secretary, Mr. N. P. Bryan, district director, Division of Industrial Hygiene and Medicine, U. S. Public Health Service; treasurer, Mr. Harold C. Knopf, city chemist, Division of Health, Cleveland, O.; executive committee, for one year, Mr. William F. Morse, sanitary engineer; for two years, H. L. Rockwood, M. D., commissioner of health, Cleveland, O.; for three years, R. G. Perkins, M. D., professor of Hygiene and Bacteriology, Western Reserve University.

"Water supply improvements have prevented seventy cases of typhoid fever in five cities in Ohio since the beginning of the year," declared the State Department of Health recently, basing its estimate upon a comparison of the 1919 total cases reported to May 25, with the corresponding figures for last year.

Striking evidence of the value of pure water supplies was furnished by the records of East Liverpool, Zanesville, Springfield, Ashtabula and Conneaut. East Liverpool has reported no typhoid cases this year. Up to the corresponding time last year its reports totaled 12 cases. For Zanesville the 1919 total to date is 11 cases, of which 9 occurred before water from the city's new filtration plant came into general use about February 1; the other 2 are believed to be due to contact infection. Up to May 25 last year Zanesville reported 30 typhoid cases. Springfield reported 27 cases in January, 1918, and the next four months. No cases have been reported this year. Treatment of the city water supply with liquid chlorine was begun in February, 1918. Ashtabula and Conneaut placed their purification plants under expert technical supervision last November. To date this year Conneaut has reported one typhoid case and Ashtabula none. In the first five months of last year Conneaut reported 8 cases and Ashtabula 3.

Repeated instances in which physicians have incorrectly reported smallpox cases as chicken-pox, permitting smallpox epidemics to get well under way before they are known to health officials, have

caused the State Department of Health to adopt a system of following up monthly summary reports of chicken-pox sent in by local health officers.

Every mayor of a city under 25,000 population and every chairman of a township board of trustees in Ohio has received a letter from the State Department of Health, outlining the preliminary work necessary for working under the new Hughes Act, revising local health organization, etc.

These local officials in each county must take the first step in the reorganization, by gathering at their county seat as soon as possible after August 10 and forming themselves into a district advisory council for the county health district. The council will then elect a district board of health for the county, and this body in turn will appoint a district health commissioner and other officials from civil service lists, and will draw up a health budget for the district. The budget will then be presented to the advisory council and after approval by the council will be apportioned among the townships and municipalities in the district. The new officials will take active charge of health administration after January 1, when the present organization will pass out of existence.

Wisconsin.—The Milwaukee health department is developing a thoroughly organized system for reducing the infant mortality rate. The program includes discourses on prenatal conditions at each of fourteen substations of the child welfare department for expectant mothers.

Establishment of branches of the Milwaukee health department in various parts of the city will be sought next year by Health Commissioner G. C. Ruhland, and additional nurses will be asked.

Maj. Lee Alexander Stone, M. C., U. S. R., regional consultant of the United States Public Health Service, has been on assignment to the Wisconsin State Board of Health in connection with plans for the enforcement of the venereal disease program, and will return to Wisconsin in September for engagements to speak.

Laboratory examinations of 20,000 persons in Wisconsin in four years show that over 22 per cent are actively syphilitic, according to Dr. W. F. Lorenz, director of the Wisconsin Psychiatric Institute, in a report made to the state legislature. He recommended appointment of a commission to consider the conditions in the state and formulate combative plans for consideration by the next legislature.



CONVENTIONS, CONFERENCES, MEETINGS.

The JOURNAL will be glad to publish the dates of prospective conventions or meetings of associations whose purposes are allied to those of the American Public Health Association.

American Public Health Association, New Orleans, La., October 27–30, 1919.

September —, Iowa Public Health Association.

September —, Kearney, N. J., New Jersey Health Officers Association

September 8–12, Cincinnati, O., American Dietetic Association.

September 8–12, Cincinnati, O., American Hospital Association.

September 11–13, Seattle, Wash., Health Officers' meeting.

September 17–18, Quebec Public Health Association.

September 29–30, Pittsburgh, Penn., National First Aid and Mine Rescue Meet. In connection with the dedication of the buildings of the Pittsburgh Experiment Station of the U. S. Bureau of Mines.

September 29, Cleveland, O., National Safety Council.

Week of September 29, New Orleans, La., Southern Tuberculosis Conference.

October—, Des Moines, Iowa, Mississippi Valley Conference on Tuberculosis.

October —, Richmond, Va., Health Officers' meeting.

October —, Jackson, Miss., Health Officers' meeting.

October —, California Public Health Association.

October 1–3, Long Beach, Cal., Southwestern Tuberculosis Conference.

October 1–4, Cleveland, O., National Safety Council.

October 7–9, Springfield, Ill. Illinois Public Health Association.

October 27–30, New Orleans, American Public Health Association.

November 12–14, New Orleans, La., American Society for Municipal Improvements.

November —, Minnesota Public Health Association.

1920, January, Concord, N. H., Health Officers' meeting.

1920, May —, New Orleans, National Conference of Social Work.

1920, May 12, Washington D. C., U. S. Pharmaceutical Convention.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh and P. M. Holmes.

Problem of Fatigue.—This carefully composed paper discusses first the theoretical explanations of fatigue and of recovery, expressing doubt as to the conclusion of efficiency engineers, such as Taylor, that they have answered this question for the human organism, and laying stress on the importance of interest or emotion as a factor in the existence or non-existence of fatigue. Cannon's findings are that adrenin production by the organs of like name is the most probable explanation for "second wind" or the sudden accessions of energy which may take place in an individual. "What rest will do only after an hour or more, adrenin will do in five minutes or less." It is only necessary that these very important glands be stimulated to pour out their juices to the blood, but the increased efficiency is a temporary matter and adrenin production cannot be substituted for sleep and normal rest indefinitely. From this point of view, nervous breakdown would really be a condition of adrenin poisoning. Spaeth would emphasize that a definition for fatigue must take into consideration the emotional situation. Conclusions regarding tests for fatigue are that those for output are often fallacious since normal fatigue is associated more with the less efficient workers and accumulative fatigue is often associated with a high output; a question as to the relationship between accidents and fatigue; psychophysical tests are impracticable under industrial conditions with the suggestion that new forms of such testing offer a hopeful field for further work; that tests regarding the reflexes are inadequate; and that certain further tests are necessary. The writer points out that sensations of weariness are not a reliable index of the true state of diminished working capacity since an emotional stimulus may completely alter the situation. Such was taken notice of practically in munition factories by placards bearing such inscriptions as "Do your Bit," "The Germans Are Making More Propellers Than We Are! Are *You* Responsible?", etc. In regard to the length of the working day, after a review of much foreign evidence, particularly British, the writer concludes that the men who planned such radical industrial programs against long hours, night work, and overtime for women, were possessed with a profound wisdom and social vision. The author suggests limiting the term "industrial fatigue" to daily and weekly weariness and introducing the term "industrial psycho-neurosis" for accumulated fatigue in overdriven industrial workers. "In recent years scientific management has unfortunately developed along the lines of highly specialized 'motion studies,'" frequently having as objects plans for establishing a basis of piece-rate or bonus systems, but with the result that workers have considered the same as merely a special sort of drive and as governing individual bargaining instead of union bargaining so that they have urged legislation against the practices of scientific management. A very extensive classified bibliography accompanies the article.—Reynold Spaeth, *Journal of Ind. Hyg.*, May, 1919, Vol. 1, No. 1.

(*E. R. H.*)

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Telephone Operators.—The writer gives the medical aspects of nine years' experience with the New England Telephone and Telegraph Company, —the gradual improvements in working hygiene; the institution of benefit committees; of physical supervision; and the findings regarding diseases of the eyes, ears, nose, and throat, digestive tract, tuberculous, and nervous diseases. Good evidence of occupation as the sole cause of any disordered condition found among telephone operators was seldom the case. Unquestionably, standardizing the physical requirements of the employee cuts down the amount of sickness. The author's article is composed largely of case illustrations and statements of experiences, but very few conclusions are drawn. Numbers of tables are given, showing the various types of sickness. The figures for tuberculosis are too small for deductions. Stress is laid on the human element in the relationship of work and disease.—Anna G. Richardson, *Journal of Ind. Hyg.*, May, 1919, Vol. 1, No. 1, pp. 54–67.

(*E. R. H.*)

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Welfare in Fuel and Iron Company.—The annual report of the medical department of the Colorado Fuel and Iron Company summarizes briefly the statistics of 132,057 patients treated during the year. Of these, 39,722 were at mining camps, 81,899 at steel works, and the balance at Minnequa Hospital and Dispensary. Medical, surgical, and dental service is rendered. Stress is laid on teeth, tonsils, and nursing. The bulletin is well illustrated.—*Industrial Bulletin Colorado Fuel and Iron Company*, Sept. 25, 1918, 25 pp.

(*E. R. H.*)

Disposal of Industrial Wastes.—A recent bulletin of the U. S. Public Health Service on studies on the treatment and disposal of industrial wastes, made under the supervision of Prof. E. B. Phelps, contains much interesting material. The bulletin is composed of two papers: (1) "The Treatment and Disposal of Strawboard Wastes," by H. P. Hommon; (2) "The Determination of Bio-chemical Oxygen demand of Industrial Wastes and Sewerage," by E. J. Theriault and H. P. Hommon.

The wastes from strawboard plants create an insufferable nuisance and kill fish when discharged into small streams. The aid of the American Strawboard Company was enlisted towards the making of studies to develop, if possible, a method of purification and sludge disposal which would satisfactorily meet the requirements of State Boards of Health and Fish and Game Commissions and at the same time be practical and economical for the use of the strawboard companies. A testing station was built at the Noblesville, Indiana, plant of the American Strawboard Company and operated from January 1, 1915 to July 1, 1916. As a result of these tests it was found that sedimentation for a period of from two to three hours followed by filtration through cinders produced a final effluent suitable for discharging into a stream without danger of killing fish or creating a nuisance. It was also found that the sludge accumulating in the tanks could be dried on cinder beds in about thirty days and that the dried material had a fertilizing value about equal to the ordinary barnyard manure. The effluent would not show putrescibility at room temperature for four days. The results at the testing station were so satisfactory that the American Strawboard Company requested the U. S. Public Health Service to design a permanent unit to demonstrate on a large scale the possibility of duplicating the results obtained in the testing units.

A further result of these studies was the development of an improved procedure for the determination of the bio-chemical oxygen demanded by sewage and industrial wastes. The new procedure seems to have overcome the more serious difficulties that have been experienced in the past in the excess oxygen method, and the results obtained are concordant among themselves and of sufficient accuracy for the purposes for which they are required.

(*M. T.*)

Scope of Industrial Medicine and Surgery.—Mock gives a history of development of industrial medicine and surgery in America, placing its inception at about ten years ago. (However, in connection with industrial hygiene, the work of Kober in 1908 for the President's Home Commission; of Graham-Rogers in the state of New York; of Doehring for the U. S. Department of Labor in 1903; of Massachusetts and New Jersey investigations; and others, antedate this period.—E. R. H.) The organizations which have been created, some independent and some in connection with existing associations such as the National Safety Council, the section on Industrial Hygiene of the American Public Health Association, the division of Industrial Hygiene of the United States Public Health Service, and the American Association of Industrial Physicians and Surgeons, are all pointed out by Mock. The relationship between industrial production and industrial medicine and surgery is covered, including the scheme drawn up by the subcommittee of the Council of National Defense, of which Dr. Otto. P. Geier was director. The relationship of the reorganization in the United States Department of Labor, of the Women's Division of the Department of Labor, of the Ordnance Department, and of the efforts to prepare industrial physicians and surgeons by medical schools are discussed. Mock estimates that there are today approximately 3,000,000 workers of the nation who are receiving the benefits of this enlightened era in industry. There still remain about 30,000,000 who are receiving no kind of health supervision. The amount of child labor still in use is unbelievable. The lack of protection against occupational diseases is appalling.—Harry E. Mock, *Journal of Ind. Hyg.*, May, 1919, Vol. 1, No. 1, pp. 1–9. (*E. R. H.*)

Bear in mind New Orleans! October 27–30.

Do not fail to be there.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

Agglutinins in the Sputum of Typhoid Patients.—Agglutination tests performed with the sputa from typhoid patients were positive in 52 cases out of 63 patients, and the agglutination values were the same as those of the corresponding sera. The great majority of the sputa of typhoid patients gave positive agglutination in 1 to 5 and 1 to 10 dilutions. The agglutination titers of the sputa from some of the typhoid patients were as high as 1 to 12 and 1 to 160, being comparable to the results secured with the sera. The sputa of typhoid patients never agglutinated the paratyphoid A and B. The sputa from febrile patients other than typhoid and of healthy persons never presented a positive agglutination in a 2 to 5 dilution. The experiments show that sputum from typhoid patients can be employed for diagnosis.—H. Nishiguchi. *Proc. Japanese Bact. Soc.*, Tokyo, 1918; *Abstr. Bact.* 2,319 (1919).

✻

Phagocytosis and Agglutination in the Serum in Acute Lobar Pneumonia.—In 33 cases of acute lobar pneumonia in which the phagocytic activity of the serum after crisis or lysis was tested with the homologous strain of pneumococcus, 28, or 85 per cent, gave definitely positive results. These results confirm and extend those previously reported by the author. In 26, or 79 per cent, of these cases agglutinative activity was demonstrable, as well. In 18 cases in which definite phagocytic activity was demonstrable in the serum after recovery either for the homologous strain or for a stock strain of known type, tests were also made with serum obtained during the acute stage of the disease, and negative results were obtained in 15. The three sera which showed phagocytic activity were obtained 24 hours or less before crisis. Serum was also examined from seven patients who subsequently died of the disease, and negative reactions were obtained in six. A positive reaction was obtained in one patient, who, after a short remission, died apparently of sepsis and endocarditis. The phagocytic and agglutinative activity of the serum developed after the recovery from infection with pneumococci of all the recognized types. It was strictly limited to organisms of the same type as that with which the patient was infected, but, as a rule, was exerted equally well on the homologous strain and on heterologous strains of the same type. It is, therefore, specific as to type, but not specific as to strains. The agglutinative activity of the serum as observed in these tests paralleled closely the phagocytic activity. The clinical value of the test will not be great as a method either of diagnosis or of prognosis, since the reaction develops only when recovery sets in.—Paul W. Clough, *Bull. Johns Hopkins Hosp.*, 30,167 (1919).

✻

Influence of Malaria on the Wassermann Reaction.—The Wassermann reaction conducted according to a recognized method does not give a positive reaction in malaria at any stage of the disease. If a positive Wassermann reaction is obtained in a case of malaria it is due either to undiagnosed syphilis or to faulty technic.—J. Gordon Thomson and C. H. Mills, *The Lancet* (Engl.), 196,782 (1919).

✻

Malaria and the Bordet Wassermann Reaction.—On the basis of 300 tests, of which two-thirds were made in malarial subjects, the author maintains that the Wassermann reaction retains its usual diagnostic value in malarial subjects, unless the serum examined is obtained during an actual malarial paroxysm. At this time the natural hemolytic power of the serum is often absolutely nil, as is the case in any acute affection associated with violent febrile paroxysms, and there is an apparent positive reaction through absence of hemolysis. Furthermore, this false positive reaction during malarial paroxysms is not even constantly observed, for the author obtained some negative reactions with blood obtained at the very beginning or from 12 to 30 hours after a typical paroxysm.—S. I. de Jong, *Bull. Soc. Med. des Hopitaux*, Paris, Jan. 23, 1919; *N. Y. Med. Jour.*, June 7, 1919.

✻

Etiology of Yellow Fever.—The author reviews Noguchi's recent work. He states that before we can accept Noguchi's conclusions, the final proof must be obtained, namely, that pure cultures of the leptospira he has isolated will induce yellow fever in man, and also the determination of the cycle of evolution of the given leptospira in the mosquito until its final reimplantation in its vertebrate host. It would be an immense advantage if the leptospira or other germ should prove to be the actual specific agent, as this would enable us to detect the abortive and masked cases in adults and children which now perpetuate the scourge.—J. Arce, *Anal. Facult. de Med.* (Lima), 2, 53 (1919); *Jour. A. M. A.*, 72, 1710 (1919).

Eijkman Fermentation Test.—Huss (Stockholm) made numerous attempts to determine the optimal conditions of temperature in the search for *B. coli* in polluted waters. He found that the Eijkman fermentation test, working with a temperature of 46° C., gave very good results. With this method only 48 hours are required to obtain a definite conclusion.—Harald Huss, *Centralbl. f. Bakt.*, Jena, 2. Abt., 48, 295 (1917).

*

Nitrate Reduction in Humid Soil without the Addition of Sources of Energy.—The author established the fact that the phenomena of denitrification can take place, in a soil sufficiently humid (40 per cent of water), without the addition of any organic substance as a source of energy. The presence of a layer of water which envelopes the elements of the soil gives rise to the establishment of an anaërobic medium in which the denitrifying bacteria can function freely and reduce the nitrates to a state of elementary nitrogen. In soils with only very slight amounts of organic material, this reduction can take place, provided the soils are only slightly aërated. It appears, therefore, that the presence of large quantities of cellulose is not at all necessary for complete denitrification, contrary to a very general belief.—Alice Oelsner, *Centralbl. f. Bakt.*, Jena, 2. Abt., 48, 210 (1917).

*

Importance of the Ketonic Function in Metabolism. Its Creation by Symbiotic Bacteria.—In the interpretation of facts already known concerning the transformation of carbohydrates in the organism, the authors have emphasized the principal rôle which the ketonic function appears to play in vital metabolism. This chemical grouping characterizes one of the most constant steps in the oxydation of the hydrocarbon molecule as shown in particular by the study of the phenomena of the oxydation; just as the disintegration of such a molecule may yield intermediary products possessing this function, such as is the case with the formation of pyruvic acid in the course of the transformation of saccharose. In preceding works of the same authors it is shown that the symbiotic bacteria are the active agents of ketonization and this emphasizes the importance of their possible intervention in the course of certain transformations vital to the organism. Along this line, the authors' work records the results of new experiments showing that certain sugars (pentoses, hexoses, bioses) and certain polyalcohols (glycerine, mannite) are acted upon by the symbiotic bacteria of mammals and birds which partially transform them into acetyl-methyl-carbinol (CH_3-CO-CHOH-CH_3). It is to be noted that glycerine, according to the culture medium, does or does not yield dioxyacetone, which in its turn yields the acetyl-methyl-carbinol. The authors believe there are good reasons to regard the bacterium of sarbinose as a true symbiote of insects; it is known that this organism is an energetic factor of the ketonic function. On the other hand, the symbiotes have the faculty of causing synthesis under certain favorable conditions. In a medium containing nitric nitrogen and saccharose of a certain concentration, the symbiotes are able to transform the sugar into a polysaccharide the acid hydrolysis of which yields a hexose, characterized by its osazone, glucosazone. It is to be noted that with glucose, the formation of polysaccharide is always very minute, which gives rise to the belief that the molecule of levulose plays an important role in the phenomenon of synthesis. It is a remarkable fact, that the production of saccharide is always accompanied by the appearance in the medium of a certain alkalinity possibly reaching N/10 and therefore very close to that of pancreatic juice. The authors correlate these observations with certain physiological or pathological facts, namely, the inability of the diabetic or an animal from which the pancreas has been removed to fix glucose, whereas levulose is utilized by them for the formation of glycogen; the probable necessity of an alkaline reaction for the accomplishment of the work of synthesis by the liver.—Portier and Bierry, *Compt. Rend. Acad. d. sc.*, Par., 167, 94 (1918).

*

Placenta Broth as a Most Reliable Culture Medium for the Obtention of Diphtheria Toxin.—Four liters of placenta are very finely minced and suspended in four liters of water and boiled for three hours. The fluid obtained after filtration is reduced to three liters, alkalinized with a 10 per cent NaOH solution until a slightly rose color is given with phenolphthaleine. The liquid thus obtained constitutes an excellent medium for the obtention of diphtheria toxin. Its only disadvantage is that it contains much albuminoid matter. To obviate this the following modification is introduced: After suspending the minced placenta in water, about 10 cc. of concentrated hydrochloric acid are added, the whole well shaken, boiled for about two hours and filtered through paper. The filtrate, alkalinized as above with NaOH, is steamed for one hour in the albuminoid material, precipitated by the heating, is then removed from the liquid, which is of yellowish color and quite transparent. In this way, by working with four liters of placenta, there are obtained four liters of broth, which is no longer clouded by the addition of acid or alkali, and in which the diphtheria bacilli grow luxuriantly and produce the maximum amount of toxin within

three to five days. The fatal dose of this toxin is on an average 0.02 cc., occasionally the fatal dose ranges between 0.01 and 0.005 cc. The weakest toxin thus far obtained with this medium was fatal with the dose of 0.05 cc.—W. Stern, *Centralbl. f. Bakt.*, Jena, 1. Abt., 82, Orig., 49 (1918).

*

Rapid Technique for the Impregnation of Spiral Organisms in Sections.—The spirochaete of hemorrhagic icterus not being demonstrable in tissues by the impregnation method of Levaditi and Manouélian for the Treponema, the author modified the method. He fixed fragments of tissue 1 mm. thick in 10 per cent formol or strong alcohol, washed them in alcohol, then in distilled water, impregnated them in a 1 per cent solution of silver nitrate for one hour at 56°, finally treated them with the Van Ermenghem reductor (strong solution) containing 7 gm. of gallic acid, 3.5 gm. of tannin, 14 gm. of sodium acetate for 350 cc. of distilled water. Then embedded in paraffine, sectioned and, if desired, counterstained with methylene-blue-neutral red. —Y. Manouélian, *Compt. rend. Soc. de biol.*, Par., 81, 759 (1918).

*

Sterility of Catgut.—When oil is used as an immersion fluid for the catgut, washing before planting should not be carried out if a fair check is desired on the sterility of the catgut. The suture should be taken from the tube for bacteriologic examination according to the methods commonly practiced among physicians when they have occasion to use catgut. Chromicized catgut is slightly more resistant to sterilization by heat than the plain catgut. The infection that is found is either within or on the catgut itself and is not present in the immersion oil alone. From 28 to 30 pounds pressure of live steam for 3 hours is absolutely necessary to sterilize catgut such as that which was examined. Since any contamination may be pathogenic or otherwise, it seems imperative that some system of federal control should be devised similar to that for biologic products so that all firms manufacturing catgut could be required to adhere to the same standards of sterility.—C. T. Butterfield and Leo F. Ey, *Jour. A. M. A.*, 72, 1736 (1919).

*

Classification of Meningococci.—Although meningococci, when tested by Gordon's routine method against his four type serums, may show a constant type, yet when inoculated into rabbits or human subjects they sometimes appear to produce more agglutinins for other types than for the type used for inoculation.—A. G. Gibson and M. Ludlow-Hewitt, *Jour. Royal Army Med. Corps*, 5, 361 (1919).

Etiology of Yellow Fever.—The majority of guinea pigs inoculated with the blood of yellow fever patients escaped a fatal infection. In a number of instances a temporary febrile reaction occurred on the fourth or fifth day. Most of these guinea pigs when later inoculated with an organ emulsion of a passage strain of *Leptospira icteroides* resisted the infection. On the other hand the animals which had previously been inoculated with the blood of malaria patients or normal guinea pigs died of typical experimental infection after being inoculated with the infectious organ emulsion. Immunity reactions indicate that *L. icteroides* is etiologically related to yellow fever. It was possible to obtain a pure culture of a delicate organism, the morphological features of which place it in the genus Leptospira. On three occasions, that is, from 3 out of 11 cases of yellow fever, the organism was directly cultivated. The organism is difficult to stain by most aniline dyes. The presence of blood serum is essential to its growth. The virulence attained by some strains was such that 0.00001 c.c. of a culture could induce typical fatal infection in guinea pigs.—H. Noguchi, *Jour. Exp. Med.*, 30, 1 (1919).

*

Influence of Surface Tension on Bacterial Growth.—The growth of bacteria on ordinary broth is greatly influenced by the surface tension of the medium. A sodium soap of castor oil proved to be a practical surface tension depressant. All pellicle formers cease to grow at the surface when the tension is below 45 dynes. The tendency of *B. subtilis* to form spores is considerably reduced when the organism is grown on broth medium of low surface tension. Some anaërobes, *B. tetani* in particular, grow well under ordinary aërobic conditions on medium of reduced surface tension. The layer of oil often used to cover mediums for the purpose of producing anaërobiosis, probably acts by reducing the surface tension rather than by excluding oxygen.—W. P. Larson, W. F. Cantwell and T. B. Hartzell, *Jour. Inf. Dis.*, 25, 41 (1919).

*

Prophylactic Vaccination of Tuberculosis.—The vaccine used by the author is the sensitized bacillary emulsion prepared with the avirulent strain obtained by cultivating the common virulent tubercle bacilli in a medium containing trypoflavin. The emulsion contains, besides the sensitized bacilli, a certain amount of the filtered fluid of erythrodin broth medium. It therefore consists of the whole antigen of tubercle bacillus. Good results are claimed for this procedure.—K. Shiga, *Japan Med. World*, Tokyo, May 11, 1919; *Jour. A. M. A.*, 73, 66 (1919).

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ARE WE PHYSICALLY FIT?

UNITED STATES HANDICAPPED IN COMING PERIOD OF COMMERCIAL AND INDUSTRIAL COMPETITION.

RUPERT BLUE,
Surgeon General United States Public Health Service, Washington, D. C.

Only seventy per cent of American men fit for full military duty was the verdict of the draft. Surgeon General Blue emphasizes the need of public health education, child hygiene, industrial hygiene, rural sanitation, pure water, pure milk, sanitary sewage systems, better disease notification and campaigns. A comprehensive program! : :

WHETHER the league of nations fulfills expectations or not, there is no doubt at all that we are entering on a period of intense commercial and industrial competition in which more than ever before the outcome will be largely influenced by the people's physical fitness. As Lloyd George has so well indicated when he said, "You cannot maintain an A–1 empire with a C–3 population," we should study the lessons disclosed by the draft examinations, and at once take steps to correct the conditions responsible for the poor showing.

For that it was a poor showing, nobody can deny. Think of it! Out of over three million men examined—men whose age should have constituted them the very flower of this country's manhood—only 70 per cent were found to be fit for full military service!

With the results of the draft examinations before them, federal, state and local health authorities have a definite responsibility to do all in their power to improve the nation's physical fitness. Speaking for the United States public health service, I may say that we have prepared a program of coöperation with the state and local health authorities whereby we hope to meet the deficiencies disclosed by the draft examinations.

Before passing to a discussion of this program, let me point out that an analysis of the various causes for which the drafted men were rejected in the physical examination shows that many of the conditions discovered could have been prevented or corrected, especially if there had been proper health supervision in early life.

This is quite evident when one peruses the following rejections, classified by causes:

Causes.	Per cent of all rejections
Total rejections, for all causes	100.00
Alcohol and drugs	.43
Bones and joints	12.35
Developmental defects (height, weight, chest measurements, muscles)	8.37
Digestive system	.53
Ears	4.38
Eyes	10.65
Flatfoot (pathological)	3.87
Genito-urinary (venereal)	1.33
Genito-urinary (non-venereal)	1.35
Heart and blood vessels	13.07
Hernia	6.04
Mental deficiency	5.24
Nervous and mental disorders	5.07
Respiratory (tuberculosis)	8.67
Respiratory (non-tuberculosis)	1.67
Skin	2.68
Teeth	3.16
Thyroid	1.76
Tuberculosis of parts other than respiratory	.88
All other defects	3.06
Cause not given	5.44

A little consideration will show that any program of preventive and corrective measures designed to meet these defects must begin very early in life—in fact, even in the previous generation—for only in this way can any considerable reduction be effected in some of the conditions enumerated, *e.g.*, mental deficiency, nervous and mental disorders. A large measure of health supervision must be exercised in infancy and childhood, for it is at this period that proper preventive and corrective measures are most successful. That so large a proportion of the draftees were found with "developmental defects" indicates the need of greater attention to physical training and to the important subject of malnutrition.

But our health program should go much farther than this. The large proportion of those found to be tuberculous or suffering from defects of the heart and blood vessels, or from hernia, shows that health supervision should extend to conditions affecting adult life, especially those obtaining in industry.

It is to be understood that the program here outlined is to be carried out in the closest coöperation with the State and local health authorities. The assistance of unofficial agencies as auxiliaries to the duly constituted health authorities, is, of course, most welcome and should be utilized, provided it is clearly understood that the control of all public health activities rests with the official authorities, for they, and they alone, are responsible to the people.

With this introduction, let me present the program prepared by the public health service to meet after-the-war needs.

I. Because it is one of the chief responsibilities resting on the Public Health Service, first place in the program is given to public health education. I am convinced that this is the most important, the most fundamental and the most lastingly profitable of all the activities which public health authorities everywhere can undertake. The work in health education must begin in earliest childhood and can be carried on, in coöperation with the school authorities, throughout the entire school life. It must also embrace a large amount of well planned instruction, directed to the adult. This must be carried on through newspaper and magazine articles, through lectures, exhibits, pamphlets and posters. A special effort should be made to utilize the enormous public interest in moving pictures to carry health lessons to the people. But the educational program should not stop here. It should seek to promote a better appreciation of the value of good health work among our legislators and administrative authorities, to the end that the attainment of higher standards may be made possible by more adequate financial support for well planned health activities.

II. The next item of importance in our program is safeguarding the health of infants and children. This work should concern itself with the child from the prenatal period until the close of its school life. It should include the following:

The adoption of measures for the adequate care and instruction of expectant mothers.

Safeguarding the health of expectant mothers engaged in industry.

Accurate registration of all births.

Adequate care of babies in homes, welfare stations and day nurseries.

Instruction of mothers in baby hygiene.

Safeguarding of milk supplies and establishment of pasteurization plants.

Health supervision of children of preschool age.

Supervision of home and school environment of school children, including sanitation of school grounds and school buildings.

Medical inspection of school children, including provision for the correction and treatment of physical defects.

Mental examination of school children to determine and prescribe suitable treatment and training for children who fail in class work.

III. When one considers the frequency with which physical defects in later life are traceable to an earlier attack of some communicable disease, it will be clear that the prevention and control of such diseases should have a large share of attention. So far as the Public Health Service is concerned, its administrative control over these diseases is largely confined to maritime and interstate quarantine measures. In addition to this, however, our program provides for the promulgation, by the Public Health Service, of minimum standards for the control of communicable diseases. The establishment of such standards will greatly assist state and local health authorities in dealing with these diseases.

IV and V. The next two items are closely related—namely, the provision of pure water supplies and the safe disposal of excreta. The Public Health Service plans to extend its work of making sanitary surveys of existing water supplies and of aiding communities to obtain safe supplies. So far as the disposal of excreta is concerned, it is planned to continue the scientific studies which aim to devise simple and effective means of sewage disposal, and to establish minimum standards of permissible pollution of streams, lakes and rivers used for water supplies. Proper sewage disposal will control intestinal diseases, such as typhoid fever, dysentery, diarrhea and hookworm. In this country these diseases are responsible for an enormous amount of sickness and for at least 60,000 deaths annually.

VI. The Public Health Service would take an active part in improving this country's milk supplies by assisting in the general adoption of pasteurization, an adequate system of administrative supervision of the production and handling of milk supplies.

VII. An important part of the program of the Public Health Service is that relating to industrial hygiene. This provides for the continuation and extension of health surveys in industry with a view to determining precisely the nature of the health hazards and the measures needed to correct them. It also includes:

Securing adequate reports of the prevalence of disease among employes, and the sanitary conditions in industrial establishments and communities;

Establishment of minimum standards of industrial hygiene and the prevention of occupational diseases;

Improvement of the sanitation of industrial communities, the work being undertaken in coöperation with state and local health authorities.

VIII. Since over half of the population of this country lives in what are generally classed as rural communities, a large part of the program of the Public Health Service relates to rural sanitation. It embraces studies to determine improved methods of rural sanitation, and the widespread

dissemination of simple rules for rural sanitation through various governmental and civil agencies, such as the bureaus and divisions of the Department of Agriculture, the Farm Loan Board, agricultural colleges, public school boards, farmers' associations, women's clubs and the like.

The program also seeks to provide federal aid extension for the establishment and maintenance of adequate county health organizations in places in which the county and state governments, separately or together, will bear at least one-half (usually two-thirds) of the expense for reasonably intensive health work.

IX. Those who are familiar with malaria realize that few other diseases in this country have so disastrous an effect on physical efficiency. The program of the Public Health Service, therefore, seeks to aid by:

The further dissemination of knowledge of methods for controlling malaria;

The extension, through the country, of surveys of certain areas, as to the prevention of malaria and the malaria-carrying mosquitoes;

Continuing the demonstrations of methods employed by the public health service in various parts of the country whereby malaria has been effectively controlled;

Securing legislative action whereby extensive malaria operations can be carried out in coöperation with state and local health authorities on a fifty-fifty basis.

X. Inasmuch as it is impossible to direct health activities into the most effective channels without accurate and prompt information regarding the occurrence of disease, the Public Health Service seeks to improve its present service to health officers throughout the country by extending the system of maintaining collaborating epidemiologists in each state to assist in the prompt tabulation and forwarding of mortality reports.

In addition to this the Service proposes to aid the work in industrial hygiene by collecting special morbidity reports from industrial establishments throughout the country.

XI. Although they are included under communicable diseases, venereal diseases deserve and receive special mention in the program of the Public Health Service. The measures for the control of this important group of diseases are both medical and educational. They include:

MEDICAL.

Establishment of clinics, dispensaries and hospitals.
Epidemiologic studies.
Free diagnosis.
Examination for release as non-infective.
Free distribution of arsphenamine.
Control of carriers through detention and commitment.

EDUCATIONAL

Proper reporting of carriers.
Standardization of pamphlets, exhibits, placards and lectures.
Coöperation with national, state and local authorities and volunteer agencies.
Coöperative work in industrial plants, shipyards and railway employes' organizations.
Coöperation with druggists to prevent counter prescriptions and to control the use of patent nostrums for the treatment of venereal diseases.

XII. What has been said regarding venereal diseases applies also to tuberculosis. This disease is so important as a cause of disability that it deserves special consideration. The Public Health Service aims to secure:

Stringent provisions for the proper reporting of cases of tuberculosis.

Adequate instruction of families and patients, especially in families where there is a patient with advanced disease.

Hospitalization of cases wherever practicable, either through city institutions or by arrangements with state or district tuberculosis hospitals.

Coöperation with national societies and agencies having for their object the prevention of tuberculosis or the improvement of economic conditions.

Improvement of industrial conditions predisposing to tuberculosis, such as "dusty occupations."

XIII. Because of the interstate character of much of the work, railway sanitation is peculiarly a responsibility of the Public Health Service. In addition to measures for the health protection of the railway employes the program of the Public Health Service provides the following for the protection of the public health:

Sanitary supervision of water, milk and food supplies furnished by the railroads.

Sanitation of stations, terminals and rights of way with special reference to sewage disposal, malaria, mosquito eradication, and screening against disease-bearing insects.

Prevention of the spread of communicable diseases through common carriers.

XIV. Finally, inasmuch as the supervision of the public health and the administration of public health activities cannot be carried on without well trained health officers, and because the facilities for training such officers are still most inadequate, the program provides for the establishment of training schools in public health work in connection with stations of the public health service and with leading universities.

How much of this can be carried on will, of course, depend on the funds appropriated by Congress. That every dollar spent in preventive and corrective work of the kind here outlined constitutes a highly profitable investment has been well established. To neglect such important work at this critical period is to enter the coming commercial and industrial struggle with a distinct handicap.

ANTI-MALARIA MEASURES IN VITI.

In its world-wide surveys of health conditions, the International Health Board has come upon many interesting and unusual problems. The illustration presents one of these, a fence of bamboo in the Feejee Islands. Residents in temperate climates may have difficulty in relating such a thing to malaria, but it is really a tropical phase of the tin can or gutter problem of colder climates. The bamboo has at frequent intervals in



its length a woody partition across its stem. Use is made of this in manufacturing the various liquid-carrying utensils of the tropical home, for it provides a solid bottom to the bucket or pitcher or dipper. When bamboos were cut for fences it was a favorite native decoration to leave the ring, which indicates the place of this partition, at a little distance below the top of the fence. Here was provided an admirable breeding place for the mosquito The International Health Board has been introducing a new style in fence building which will cut the bamboo just at the joint and leave no water cavity at the top. The picture is from the splendid stock of photographs in the Library of the Board.

HOW THE ARMY CONTROLLED DISEASE.

GEORGE A. SOPER, PH. D.,
Major, Sanitary Corps, U. S. A., Washington, D. C.

Eight defenses against disease in Army camps are outlined by Major Soper. The information is valuable for civil administration as well as military. The lines include draft examination, detention, instruction, camp construction, literature, coöperation between military and civil authorities, daily inspection, quarantine and the hospital.

AT the Atlantic City meeting of the American Medical Association, held in June, 1919, an exhibit of the work of the Medical Department was held in which the army's system of disease control was succinctly stated. The results, as well as the system itself, were explained in a specially prepared wall exhibit.

So many requests have been made for a copy of this statement that it is here given with a few modifications intended to suit it to the printed page. It is by no means a complete account of the campaign which was carried on in order to keep the men free from disease, and it purposely omits the efforts made against venereal infections, a subject which has been so thoroughly described as to need no repetition here.

There were three great principles involved: The Defensive, the Offensive and the Administrative. The object of the defensive was to keep disease from entering the camps; the purpose of the offensive was to discover infections which, in spite of all care, crept in; the intention of the administrative was to exercise such supervision over the whole subject as would insure a proper conduct of the campaign.

The army was fortunate in the possession of the mobilization camps, for these greatly simplified the question of disease control. No great advantage was gained by the use of barracks in place of tents, but the substitution of sewerage systems instead of the old latrines and the employment of wholesome and abundant water supplies for drinking and washing gave the soldiers at the outset of their career advantages for health which it is difficult to overestimate. At one stroke the danger of typhoid, diarrhea and other intestinal diseases was greatly reduced.

The care of the barracks, tents, mess halls and latrines were all standard procedures before America entered the war. This care was admirable where the underlying principles which were laid down by the Medical Department were properly employed. Dependence was placed upon cleanness, sunlight and order; no attempt was made to employ intricate or ultra-scientific methods to overcome conditions which might lead to disease.

With these general remarks we may go on to the particular procedures. The recruit was given a medical examination by his first draft board. If he was found to be suffering from an epidemic disease, his departure for camp was delayed until he recovered. This was the first line of defense for the protection of the camp. Its object was to keep disease as far away as possible.

Upon arrival at camp, the recruit was given a thorough medical examination.

For two weeks he was kept with other recruits in a place separate from the rest of the troops so that if he developed an infectious disease he might not infect others.

If he had an infectious disease, the recruit was sent to the hospital. He was given careful attention there in order that (a) he might get well as soon as possible and (b) not cause others to become sick. If the recruit did not develop an infectious disease, he was sent to join the main body of troops. This, the camp's second line of defense against infection, was designed to prevent disease from being brought in from outside.

As soon as he arrived in camp, the recruit was vaccinated against smallpox, typhoid and paratyphoid fevers. He might also be vaccinated against pneumonia. The recruit heard his first lectures on personal hygiene and learned how to get immediate attention if he was taken sick. This was the camp's third line of defense. Its main object was to increase the men's personal resistance to disease.

In the construction of camps steps were taken to prevent infectious diseases from (a) entering and (b) spreading. This was done by (1) selecting a suitable site; (2) locating the barracks and tents so that they would have enough suitable ground around them and good surface drainage; (3) providing pure and ample water supplies; (4) arranging suitable water closet and bathing facilities; (5) devising systems of sanitary sewage and garbage disposal. This was the camp's fourth line of defense. Its purpose was to prevent the spread of diseases through an improper disposal of wastes.

The procedures to be followed in the handling of infectious diseases were the subject of constant instruction. Medical officers were supposed to be familiar with approved methods for preventing the spread of infectious disease and were held responsible for their proper application.

Basic rules for dealing with infections are contained in the "Army Regulations" and "The Manual of the Medical Department." Orders and circulars of suggestions were issued from time to time by the Surgeon-General of the Army and by the commanding officers of the camps for the use of the organization surgeons. The camp surgeons provided lectures and demonstrations to the regimental medical officers each week. The men were given instruction in prophylaxis. This, the camp's fifth defense, was intended to convey a knowledge of how infections could be prevented.

Responsibility for the health of the troops devolved upon the line officers as well as the medical officers. It was impossible to maintain efficiency without effective coöperation by both arms of the service. Practically all action was taken on the advice, and not by the order of medical officers. Medical officers may command only their own troops. This was the sixth line of defense. Its purpose was to state what should be done and who should do it.

Sanitary supervision was exercised over all the soldier's activities. This had to do with such subjects as cleaning and ventilation, the preventing of overcrowding, the management of post exchanges and places of popular resort in the cantonment zone.

By coöperation with the civil health authorities in the territory surrounding the camp, information was supplied to the camp surgeon concerning the prevalence of infectious diseases in that territory. In this way knowledge was obtained of any dangers to which the soldiers might be exposed when they left camp for a few hours.

When troops were sent from one camp to another, information was sent with

them concerning the infectious diseases to which they had been exposed. This was the seventh line of defense. Its purpose was to make certain that the correct precautions were taken.

To control infectious diseases they must first be discovered. They should be discovered as soon as possible. This was provided for by the old institution of sick call and the new plan of inspection.

Sick call is a call at the doctor's office. If the soldier feels sick, he is taken by a sergeant to see the regimental doctor, or if stricken seriously ill, the doctor calls upon him. The man is sent to hospital, or to the regimental infirmary or to his quarters, depending upon the nature and the severity of the attack.

Inspection consists in lining the men up and so examining them. In a suspected case the man is questioned and his temperature taken. When there is reason to suspect an infectious disease exists, the man is ordered to fall out and report at the infirmary for further examination. The whole company may be compelled to strip in order that the inspection may be more thorough. This was the eighth line of defense. Its intention was to detect cases of impending epidemic disease at the earliest possible moment.

When a soldier was taken sick with an epidemic disease his comrades were quarantined in their quarters until it was known whether any others were infected also. In many instances only time could determine this point. The quarantine was continued until all who were infected were discovered.

The cause of the outbreak was investigated. The patient was interrogated and all possible connections with previous cases were inquired into. Where carriers were found they were quarantined in a part of the camp especially set aside for that purpose. This was the ninth line of defense and was intended to confine the spread of disease to those first exposed.

Each organization had an infirmary where mild cases of non-infectious disease could be treated and where surgical cases of minor importance might be attended to. The infirmary also afforded an opportunity for observing men who might be coming down with infectious diseases and should be separated from their fellows for the safety of the camp. This was the tenth line of defense. The purpose was to cure slight illnesses and protect the camp against unrecognized cases.

The hospital was the battleground on which to deal with recognized cases of epidemic disease. The hospitals were divided into many wards where the different diseases could be dealt with separately.

In connection with the hospitals there were isolation camps where men who had been in contact with cases of infectious disease were sent for observation. It was only after the patient had been cured and entirely freed from the possibility of transmitting disease that he was discharged from the hospital and sent back to his organization. This was the eleventh line of defense; in some instances it was the greatest. Its object was to afford a suitable place where disease, having been driven from every other spot, could be properly nursed and treated.

The regimental companies kept records of all new cases of sickness, including the name, diagnosis and disposition of the cases. The company reports were consolidated into a daily regimental report. The infirmaries and hospitals recorded their admissions for each cause and the number of patients discharged. Copies of all these reports were submitted each day to the camp surgeon, and reporting directly to him were a

sanitary inspector, a sanitary engineer and an epidemiologist, each exercising appropriate supervisory duties.

Each week the camp surgeon sent a telegraphic report of the infectious diseases to the Surgeon General at Washington. In the event of an exceptional outbreak a special telegram was at once forwarded stating the details. Monthly sanitary reports, special sanitary reports, and reports of camp epidemiologists gave further details to the Surgeon General.

Every week a table of current disease statistics, relating to all the camps, was prepared and distributed by the Surgeon General. At the end of the year a comprehensive printed report with the tables of data based on the most complete data obtainable was issued by the Surgeon General. This was the twelfth and last line of defense. It was the means by which the presence of disease was officially recorded and measured.

Laboratories situated at each camp played an important part in detecting and suppressing disease. By their means food handlers were examined for the carrier state; meningitis carriers were looked for; water and milk were analyzed, and a large amount of other work done to assist in defending the soldiers against disease.

From the Surgeon General's Office, officers of high rank made systematic inspections of the camps and the findings of these inspectors were reported to the Surgeon General and to the commanding officers of the troops.

In the Surgeon General's Office at Washington a section, consisting of a number of officers and men, kept careful watch of all reports, tabulated all statistics, assimilated all data and recommended such action for the control of the infectious diseases as the latest discoveries in preventive medicine indicated.



HOUSE-BOAT LABORATORY, "THE JOSEPHINE."

This adjunct to the equipment of the California State Board of Health has proved to be of greatest value in performing various functions which a floating institution of the kind can perform. The JOURNAL is indebted to the California Board for the use of the illustration.

THE SCOPE OF A FEDERAL DEPARTMENT OF HEALTH.

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Read before the Canadian Medical Association, Ontario, Ont., June, 1919.

What an up-to-date Federal Health Department should undertake to do, is set down by Dr. Bryce in eight direct statements. Among the functions are; to direct legislation, collect information, educate the public, stimulate baby hygiene, establish nursing systems, look after immigrant inspection, and equip health research laboratories.

IT IS difficult to deal adequately with such a subject without giving a historical sketch illustrating the evolution of public health through the progress of scientific medicine; but it is evident that any government adopting legislation for the establishment of such a department, based upon such progress, must have clear ideas as to the end or object it wishes to effect.

To-day there can be no doubt but that the direct effect upon what we call the man-power of the country is the motive influencing action with a view to the saving the lives of the citizens who are the source of power whether for national defence or economic progress. Such ideas naturally involve the investigation of questions lying at the basis of public health legislation, such as the number of persons who die in the first year of life, the percentage of feeble-minded in any community or the different diseases which a given group of school children may be affected with. Such problems appeal to the modern legislator because they are not only of national importance but invite public interest and demand political action.

Such causes have been especially operative during the war and take their place amongst the modern questions affecting national prosperity equally with conscription, submarines, aeroplanes and dreadnaughts, since upon the health and hygiene of the army depends the effective use of all other destructive agencies. Naturally, to the student of public health, it is these broad problems which are of primary interest, since they include all such newer questions as child hygiene, housing, school inspection, hygiene of industries, physical education and all the details of the prenatal care of mothers, infant welfare stations, physical examination of school children, occupational hygiene, etc., and the "old health work," such as the control of contagious diseases, water supplies, sewerage systems, etc.

Naturally it will be found that our communities throughout Canada, as elsewhere, vary greatly in the stage of their evolution in health matters, some being as backward, shown by their death rates, as most countries were fifty years ago; while others have seen the evolution within the last twenty years of a public health consciousness, which has ensured methods for meeting the various social health problems, as great as that in any country, whether in Europe or America.

Realizing then in some measure the nature and extent of the objects to be attained, we shall outline some of the functions which a Federal Department of Health may fairly be expected to perform:

First. It can aid in crystallizing the most advanced health ideas into legislation, common to all the Provinces, and

provide means by which facts of vital and statistical interest can be tabulated frequently and published for general use.

Second. It can arrange for the collection of information regarding threatened epidemic and other diseases, which can be disseminated for the use and guidance of the executive officers of the several Provinces and of neighboring states and thus cultivate reciprocity in action for the general health welfare.

Third. It can coöperate in measures intended to deal with health conditions growing out of our complex life tending to disseminate diseases of a peculiarly social character. Indeed, experience shows that such measures must be yet more refined and comprehensive demanding the education of a too often unwilling public involving as they do ethical principles accepted only gradually.

Perhaps first in importance of these are the measures for dealing with tuberculosis. It is just twenty years ago since the Ontario Sanatorium Act was passed and experience since then, as well as its general adoption in other countries, has shown that local sanatoria supply the most practical means, both curative and preventive, for dealing with this disease, satisfying as they do the feelings of relatives of the sick while carrying educative influences even into the poorest home. Such centers have led to the evolution of the district sanitary visitor and health nurses and when associated with an active anti-tuberculosis society exercise a most potent influence on both health officials and charitable associations through forcing slum conditions and over crowding into the field of active municipal politics. There are annually in Canada probably one-half as many deaths from tuberculosis as there were of influenza last year; but the poverty induced through long sickness, the loss of wages and the dangers of infection to the family, probably exceed annually the cost of the influenza epidemic which has occurred but one in thirty years.

In dealing then with this disease it seems most proper that the Federal Department of Health should assist not only through education, literature, and illustrated lectures, but also directly by establishing sanatoria for Indians, by erecting several climate sanatoria where the influence of altitude, sunshine and temperature on various types of the disease can be studied, by assuming the cost of patients going from a sanatorium in one Province to one in another and by aiding through a per capita per diem grant patients in the curable stages of the disease in the several Provincial sanatoria.

Fourth. It can stimulate everywhere social and educative agencies to appoint trained nurses, just as school teachers are employed. As the visiting health nurse has become a municipal necessity in tuberculosis work, so she will become more and more the medium for dealing effectively with those social diseases spoken of as venereal, since only gradually will it become possible to reach their silent victims; but wherever clinics have been established in the general hospitals now so widely existing, the district nurse, through encountering their effects in mothers and children, will prove active instruments in inducing patients to receive and follow treatment. In this urgent work it is apparent that federal regulations, controlling the movements of persons under treatment must be passed, while a fair share of the cost of treatment may well be borne by the federal government, which has the authority to call upon the man-power of the country to come to its defence and whose value depends upon its physical efficiency.

Fifth. It can assist in the welfare of mothers and the care of their children

by such various ways as are being adopted in England. Not till the Boer War did England fully realize what physical defects meant in the loss of man-power and since then and increasingly since 1914 her health program has undertaken to deal adequately with the potential soldier and producer of wealth through elaborate plans for child welfare. This has been extended there to the point of ensuring through legislation medical assistance and home helps for the prospective mother, while in this work the general government assists the municipalities to the amount of 50 per cent of the local cost. If in this and in venereal disease work some definite proportion of the cost based upon local efficiency were borne by the federal department in Canada, results proportionate to those in England would doubtless be obtained.

This work in England is intimately related to the aid granted to such mothers under the Insurance Act of 1912 and the Maternity and Child Welfare Act of 1918, which provides for medical help, advice of health visitors, maternity or child welfare centers and food and milk both for mother and child.

Sixth. It can institute some comprehensive scheme whereby the best results of medical science can be brought to the poorest individual. The facts just given indicate the direction in which systematic child saving work will proceed in Canada; while the amounts of money spent ($811,-774.32 in 1917 in Ontario) on the 172,000 members of the Friendly Societies in Ontario, make it plain that many persons in Canada are already educated in the idea of organized mutual help; but the fact that the medical services paid amounted to only $90,621 by all these societies shows that there was either little real sickness or that the insured persons went elsewhere for treatment on the ground that the quality of the services so poorly paid for would be about in proportion to their cost.

In nothing, perhaps, would compulsory health insurance lead so directly to beneficial results as in the early care of syphilitic cases and especially of infected prospective mothers. When it is recalled that at least 50 per cent of the children of syphilitic mothers die, the great advances made in recent years in the treatment of the disease by salvarsan products may be appreciated through the reports of several London clinics, as that of the London Lock Hospital which reports that in eight months 68 pregnant women were given treatment for venereal diseases and that of these 42 were delivered, and of the syphilitics most gave after delivery a negative reaction while 37 out of 45 children were born alive.

Seventh. It can greatly extend the scientific methods of dealing with the admission to Canada at seaports of diseased or defective immigrants. This implies the existence of a fully qualified staff of all-time medical officers to carry on inspection during the immigration season, and who at other times would be employed in studying social problems and making surveys in those districts especially to which immigrants have gone.

Eighth. It can establish and equip laboratories to assist both in the work of the several services already indicated and by investigating new problems in the more technical work of the department. It is interesting to know that the laboratories of the Inland Revenue are to be transferred and will naturally devote their attention especially to food problems as they relate to nutritive values and their bearing upon child hygiene. Such could also be made of much value in establishing standards of foods in relation to their digestibility and food values in proportion to their market price. It seems apparent that maternity homes

and child welfare centers must soon become the places where will be taught and whence will radiate more practical knowledge and direct benefits to health than through any other agency. There will begin the preventive and corrective work which in recent years has been carried on in the public schools, often after regrettable delay and permanent injuries to the children have resulted, due to defects readily curable in the pre-school age.

I have attempted very imperfectly to outline some of the functions of a Federal Department of Health established in this reconstruction period after the war. When we recall that it is not much more than fifty years since the first facts were known about the agents of decomposition through fermentation and putrefaction and less than that since the germ theory of disease was either known or accepted, we may well be gratified in seeing preventive and curative agencies in medicine for dealing with disease being daily brought more closely together.

I have referred especially to the advanced work of British authorities since they accurately indicate the sentiments which will, I am sure, animate the administration of such a department of health in Canada. It is just fifty years since the first report urging the establishment of a board of health was adopted by the Canadian Medical Association and here, as in England, it has required a great war to arouse the people to a sense of the primary national need, the saving of man-power. It seems most appropriate that in peace as in war the "mental patterns" which activate all national action should travel *aequo pede* through every state within the Empire over which the flag waves, and what can be more appropriate than that we should wish to see in one of the quarterings of our coat-of-arms Aesculapius, with his ever-wise attendants, sitting meditating sublime wisdom. We hail the presence of all the daughters of the Grove with its health-giving ever-flowing springs, Healing (Janiscus), Help (Alexenor), Prayer (Aratus), Well-begotten (Hygieia), Mode of Healing (Jaso), with Panacea the all-healing herb.

To-day we dream of medicine as never-ceasing in its efforts to trace back the aberrancies of germ-plasm to its ancestral determinants and to be satisfied with nothing less than that such will again incline towards the normal. Already we know of much that can be done in the pre-natal stage to minimize potential evil; while during infancy and the pre-school age yet more can be accomplished. And so up through "the seven ages of man" the work of the goddess Panacea will operate. Indeed, when true science shall have controlled the springs of being and when the real purpose of life in its ethical aspects is understood and dominates the activities of men, we shall have a right to view man's life as an adventurous voyage along a pathway, undulating enough to prevent monotony, gently winding rather than tortuous or labyrinthine, bordered with sweet flowers banked with sturdy forest trees, and having a descent withal so gentle and gradual that it will scarcely be perceived. Then as evening comes on and the pathway passes under the over-arching boughs we shall behold its æuthanasia—the final act of a world drama, the sublime summation of a single human personality whose complex is the whole human race.

Consult Your Local Railway Agent for Winter Tourist Rates to New Orleans. These will Save You about Ten Per Cent on Your Ticket.

SO-CALLED NONRESIDENT DEATHS

A PRELIMINARY NOTE ON AN EXPERIMENTAL STUDY OF THIS SUBJECT IN NEW YORK STATE.

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Read before the section on Vital Statistics, American Public Health Association, December 10, 1918, at Chicago, Ill.

"What constitutes a nonresident death?" is a very vexing statistical question. Much propaganda and commercial announcement depend on how the term is interpreted. Dr. Eichel gives some formulated rules, and presents some illustrative tables. : : : : : :

THE subject of so-called "nonresident deaths"* has occupied the attention at some time or other of nearly every one responsible for official vital statistics. In some districts† it has caused agitation among the laity, which has even resulted in popular demands for "reform" of vital statistics. It is impracticable in this note to review various efforts which have been made both here and abroad to establish procedures for the determination of crude death rates which would exclude the deaths of persons who were not "residents" of the areas for which the rates were computed, and which would include the deaths of those persons who did have their residence therein but died elsewhere. In the United States there is no standard official method and those of individual registrars vary widely.

In New York state from time to time it has been advisable to modify, for practical administrative purposes, the mortality data of certain districts as prepared and published in formal reports by standard methods. It has been desirable, therefore, to study the problem as it affects this state to determine the nature and number of these so-called nonresident deaths, the relative importance of their causes, the districts in which they occur, and when and to what extent. In other words, granting that observation shows that enough people die away from their usual homes to considerably affect the death rates of certain districts, what would analysis show to be the nature and relative importance of various factors involved, and could a practical procedure be devised for correcting the condition?

The problem may be studied from what appear to be two different standpoints, viz.:

I. To determine for certain areas the deaths of only those persons who had their fixed and usual residence therein. Residence in this instance may be determined by some arbitrary time limit, such as one year, or the test of legal or voting residence, or by the statement on the death certificate as to usual place of abode. Such methods may have the advantage of relating the deaths to Census enumerations, or estimates, of population, but the disadvantage of not comprehending necessarily any relationship between the fatal illness and the district of its origin.

II. To determine the deaths in certain areas due only to causes having their origin (*i. e.*, with regard to time of beginning) within such areas. This would seem to have the advantage of making the crude death rates more correctly reflect local sanitary conditions.

* This term is used throughout this paper upon the assumption that certain deaths can be thus designated in accordance with a prescribed definition of "residence" from a sanitary viewpoint.

† The word "district," as used throughout this paper, means a primary registration district for vital statistics, which in the United States usually corresponds to a city, village, or township.

Relating the deaths to the enumerated (or estimated) midyear population used as a base for determining the crude death rate doubtless increases the accuracy of the rate as an expression of the proportion of deaths from all causes to each 1,000 of the population, but does it necessarily increase the accuracy of the rate as a guide to the relative vitality of such a group of individuals?* For the latter purpose the second standpoint would perhaps be more desirable, namely, to assess to each district so far as possible the deaths from causes which had their origin therein. This might involve disregarding the nonresident population, but this cannot always be definitely ascertained or estimated, nor uniformly transferred between districts even if it is ascertainable. In many instances it would not be sufficient to materially affect the population base; and, finally, such a deduction and transference of nonresident populations could not be made uniformly for all the areas (in New York state) for which the crude rates are to be corrected. But crude death rates are often subject to other fallacies which impair their comparability, of which intercommunity travel and migration is only one. Concerning the latter Dr. Newsholme† says:

"The only way to avoid the fallacies arising from migration would be to have records kept of the movements of population, and the births and deaths of each place subjected to analysis before comparison is made. In order that the death rates of two populations should be comparable on equal terms, so far as migration is concerned, it would be necessary that (a) the number of immigrants and the average duration of their residence should balance the number of emigrants and the average duration of their absence; and that (b) the proportion of persons of each sex living at each age, their state of health and liability to disease, should be the same among both."

Migration, especially that of intercommunity character, probably does not usually detract seriously from the practical reliability of the population bases used for the determination of crude death rates nor from the comparability of the latter; and certainly, as we have seen, it is not the only disturbing element present. In addition it must be noted that only in Census years have we an approximately correct enumeration, and that for intervening years estimates are used, which are admittedly less reliable than enumerations. The great majority of individuals enumerated or estimated as having their fixed residence in a certain district doubtless have maintained their usual residence therein for more than a few months or a year, and hence do essentially comprise the typical or average population of such district. For practical purposes its death rates probably do really indicate the relative vitality of such an aggregate of individuals, and probably also furnish a measure of the occurrence of mortality due to all causes combined having their origin within such a group of people,—including those causes which at present are regarded as influenced largely by environmental factors. It would seem more important therefore to transfer to each district the deaths from causes which presumably originated therein, rather than only those of individuals who had their usual residence therein. It is possible that the result would be practically the same from both standpoints,—it is one of the purposes of this experiment to ascertain to what extent this may be true in New York State.

Essential, of course, to any experimental procedure for identifying and allocating nonresident deaths is not only a

* For example, many inhabitants of a city may die of typhoid fever acquired in a nearby summer resort district but their deaths being charged to the city incorrectly indicate the prevalence of the disease in the city, whereas the resort district might be apparently free from it and its mortality indicate no serious insanitary conditions. Yet these deaths would not be transferable merely as nonresidents, because the individuals may never at any time have resided outside of that city.

† Elements of *Vital Statistics*, p. 88.

definition of residence for this purpose, but other equally important conditions, viz.,

1. Knowledge not only of the total number of deaths which occur in the area for which the correction is to be made, but also of the deaths of all, or practically all, persons having their usual residence therein but who die elsewhere.

2. Information as to each decedent's usual place of abode and length of residence in the district where death occurred.

3. Information as to the duration (by years, months, and days) of the cause, or each of the causes, of death.

4. Complete data, so far as possible, as required by all the items on the usual standard certificates of death.

5. Deduction and transference of the nonresident populations, if ascertainable and in addition if in any instances they are large enough to affect the practical value of the denominators used, and especially if such aggregates of individuals exist in the given area as practically separate social groups from the rest of the population (for example, state hospitals for the insane).

It is immediately apparent that the securing of all these conditions involves difficulties and possibilities of fallacy, and that the detailed data cannot always be secured in mathematically exact form. There are few, if any, registration offices which have complete records of all citizens having their usual residence within the district of jurisdiction but who die elsewhere; and many (especially cities) which have none at all. Thus clearly it is impossible for many registrars to effect a complete reciprocal deduction and transference of all recorded resident and nonresident deaths, and for this reason the "resident rates" published by many registrars are grossly misleading. Again, if the primary data on the death certificate are incomplete as to the place in which the fatal illness was contracted, duration of the illness, duration of residence at place of death, etc., gross errors may occur. These latter deficiencies of data are to some extent amenable to administrative control. Residence, however, with regard to the origin of the fatal disease, or the district to which the individual's death should be assessed, from this viewpoint, is an obscure question. Various definitions and applications of it are possible. As with other problems involving the complex factors of modern social conditions, solutions are not usually possible by simple "rule of thumb" methods.

Many definitions used, if not the majority, have one or both of two characteristics, viz.: (1) The arbitrary determination of residence by a time limit (usually one year); or by no time limit, and instead, the acceptance of the statement on the certificate of "usual place of residence"; (2) an applicability limited chiefly or entirely to deaths occurring in hospitals or other institutions.

Limitations would seem to be involved in the use of such definitions, resulting in fallacies as great as those it is desired to overcome; *e. g.*, there is no time limit that can be arbitrarily applied to all deaths to determine the decedents' residence or the place of origin of the fatal illness, and the duration of fatal morbid conditions varies widely; for the same reason the deaths cannot be arbitrarily charged to the usual place of residence without regard to the duration of residence in the place of death as compared with the duration of the fatal illness; the "usual place of abode" is really only the temporary residence of many people* (Americans are noted for the ease and frequency with which great num-

* It would seem therefore unessential to charge all deaths to the usual place of abode as the procedure would not necessarily relate the deaths to the census enumerations of population and certainly not to the postcensal estimates (in themselves only approximations to the average population).

bers of them change their residences from one district to another). A definition applicable only to institutions may omit from consideration the deaths which occur in health resorts not classifiable as institutions, (*e. g.*, mountain resorts for the tuberculous), and those which may occur in places not known by name as institutions (*e. g.*, private homes for nervous diseases, the insane, maternity cases, etc.).

Theoretically, then, the definition should make possible the allocation of any death to the registration district in which the decedent acquired the fatal illness. It may be argued that this cannot be exactly accomplished in the present state of medical knowledge and under present conditions of medical certification of death; and that if it could, no relationship would be proved between many causes and the districts concerned,—indeed that no relationship could exist and that the deaths would be purely accidental as to time and place of origin. But, on the other hand, as has been noted, any or all crude death rates, for these same reasons may be subject to many fallacies; that perfect accuracy is not in any event statistically achievable; and therefore the methods devised must be such as will most effectively reduce or eliminate error. The ideal method would be to study each individual death to ascertain the district to which it should be assessed, but administrative and other reasons make this impossible on a large scale. The alternative is to formulate a definition (with rules for its application) which will make possible the identification of all persons who die away from their usual district of residence, and also those who may have acquired their fatal illness elsewhere. But even such a definition will present difficulties and limitations in its applications, as will presently appear, owing to the vagueness and elusive character of the factors involved in the causation of many diseases.

With regard to place of origin, all causes of death may be divided roughly into two classes,* viz.: (1) constitutional or intrinsic, and (2) environmental or extrinsic. This classification is especially useful for sanitary purposes, and these chiefly we have in mind in studying nonresident deaths. It is those diseases which result from or are influenced largely by environmental factors which are most amenable to sanitary control, and often also it is these which are reflected in high rates and toward which public health measures are directed. It is true that these latter causes may not include the majority of all deaths which occur prematurely (*i. e.*, before "old age"), or which may be classed as preventable, but they probably do include nearly all those which may be attributed definitely to the district of origin,—types of these are the ordinary communicable diseases, and accidental causes of death. In the other group of diseases (intrinsic) are those of obscure or indeterminate origin with regard to the specific cause or the time of beginning, *e. g.*, typical of this class are cancer, arteriosclerosis, appendicitis, etc.

Many other speculations suggest themselves as to the time of beginning or place of origin of a fatal illness. For example, tuberculosis is believed to be acquired in early childhood; should the deaths of adult patients be charged to the childhood residence, place of death, or place of usual abode? A mortality rate indicates the proportion of a certain average number of people in a given area which dies in a given period of time, or the relative vitality of such a group of persons differentiated by sex, age, race, occupation, or otherwise. It is usually also assumed that the specific causes of death have their

* Sedgwick, *Principles of Social Science and the Public Health*, pp. 10–11.

origin in the given area or among its people, except those of individuals who are "nonresidents." But in any average American community many, if not a majority, of the people are not continuously subject to the environmental influences of the district of residence alone but come into contact with the environments of other districts, if only during an occasional day "in the country," or "in the city." A few hours' sojourn out of a district is sufficient to acquire typhoid fever resulting in death in two weeks, or syphilis resulting in death twenty years later—and yet the individual may actually have resided continuously in one district throughout his lifetime,—the latter having been indisputably his "usual abode" —possibly he has resided continuously in the same house in which he was born. However, in the absence of any more precise test of the vitality of a community, its annual crude or general death rate may be accepted, subject to qualifications, as a practical measure for sanitary purposes. The fallacies to which it is subject are probably not usually so great or numerous as to detract from this practical value.

It is manifest that not only are crude death rates subject to various fallacies, as by the inclusion or exclusion of deaths which from certain viewpoints are not properly attributable to the districts of death, but that any method for the correction of such fallacies must in itself be incomplete and subject to errors, owing to the very nature of the circumstances and the character of the complex factors involved. The presence of large institutions in certain districts is a well known factor disturbing the reliability and comparability of the rates of such districts. In New York state this was partly adjusted on July 1, 1917, by a law establishing state institutions as separate registration districts. But this was only a partial solution because these "institutional districts" then became a sort of statistical "limbo" or anomaly, there being no standard recognized method for transferring such deaths to the former residence of the inmate decedents; it does not include private institutions and health resort districts, nor individuals who die away from their usual abodes, nor does it affect New York City, which contains over half the deaths of the entire state and two large state institutions besides. The New York state enumeration of population in 1915 had already excluded the inmates of state institutions from the districts in which the institutions were located.

Subsequently, in 1917, when the experimental study of the "nonresident problem" was planned, it was arranged to obtain transcripts monthly during the calendar year 1918 of all deaths occurring in New York City (which is independent of state supervision in registration) for which the usual residence was given as elsewhere.* This made available the records of all deaths occurring in the state away from the decedents' usual places of abode. Those which occurred outside of the state and whose usual residence was within it remained, of course, unknown. It could be assumed that the latter were not sufficient in number to be of importance. A preliminary study had indicated that probably less than 1 per cent of the deaths occurring annually within the state are of persons whose usual residence is outside of the state. This number is probably balanced by the deaths outside of the state of persons having their usual residence within it. It is very probable that the number is smaller in the latter instance, as the state has large border cities with many hospitals, and famous health resorts, which receive pa-

* This was made possible by the cordial coöperation of Dr. William H. Guilfoy, registrar of records for New York City.

tients from all of the eastern United States. In addition, New York state had available for this purpose practically all the essential information obtainable by the routine methods of registration,—records of nearly all the deaths of persons having their usual residence within the state, practically complete essential data on all death returns, and almost perfect registration of deaths. An experimental study of the "nonresident problem" therefore seemed justifiable within the limitations herein outlined.

A tentative definition of nonresident deaths was drafted and its utility for the allocation of deaths carefully studied. It was found necessary to modify this considerably to make it inclusive of all deaths presumably due to causes not originating in the districts of death, and also to formulate rules for its uniform application. The sixth and final draft of the definition was as follows:

GENERAL DEFINITION.*

A nonresident death is that of a person who dies away from his usual place of abode within one year if the duration of the disease (stated or inferred) was as great or greater than the length of residence in the district where death occurred.

APPLICATIONS AND EXCEPTIONS.

1. *Chronic Diseases.*—In the case of a death from tuberculosis or any nervous disorder, although the length of residence exceeds one year, if the duration of the disease is longer the death shall be considered as nonresident; and if the duration is not given, all deaths from chronic causes shall be considered nonresident if they occur within six months after arrival at place of death.

2. *Infectious Diseases.*—Deaths from infectious diseases, particularly typhoid, tuberculosis, and less common diseases when in epidemic form, shall be charged to the place where the disease was contracted, if definitely known as being elsewhere than the place where death occurred.

3. *External Causes.*—A death due to violence or accidental cause shall be charged to the usual place of abode if known, unless it definitely resulted from a hazard peculiar to the place of occurrence. Deaths caused by drowning, conflagration, street car, automobile, or railroad accidents, or industrial accidents in the course of employment, are the type which shall be charged to the place of occurrence. Homicidal deaths shall be charged to the place of occurrence and suicidal to the place of usual abode.

4. *Deaths in State Institutions (Correctional, Educational, and Medical).*—These shall be charged to the place of residence at the time of admission, unless some other district is stated or may be inferred to have been the district of origin of the fatal illness.

The following additional rules were developed for application of the definition:

RULES.

(1) Deaths from external causes shall be charged to one of the following places, to be preferred in the order stated:

(a) District of occurrence; if unknown then to
(b) District of death; if unknown then to
(c) District where body was found.

(2) Deaths of inmates of custodial institutions (for the feeble-minded, juvenile delinquents, etc.) shall be treated the same as those occurring in prisons and insane asylums (see application 4 above). Deaths of inmates of orphan asylums and homes for the aged shall be treated as deaths of residents unless transferable under the general definition and its exceptions.

(3) Deaths of new born infants and young children shall be charged to the district of death and not to the district of usual residence of the mothers.*

(4) If the data upon which judgment must be based, such as residence or duration of disease, are missing or inconsistent, then charge to district of death; but if other data make possible an inference with reasonable certainty as to the district of residence when the cause of death originated, then the death should be charged to that district.

(5) Deaths occurring in a city, for which the

* In its application the definition became practically the same as this: "A nonresident death is that of a person from a disease or cause the duration of which (stated or inferred) is as great or greater than the length of residence in the district where death occurred."

The 1 year provision was retained to make possible the differential study mentioned on p. 655, *i. e.*, classification on the basis of residence as determined by an arbitrary time limit, and also on the basis of district of origin of the fatal illness.

* All births are charged to the district of occurrence, hence transference of infant deaths without transference of their births would be useless or misleading; also the infantile mortality could not be properly corrected unless both births and deaths were deducted and transferred. This procedure could not be handled administratively and was therefore postponed for future study.

ESTIMATED POPULATION AND ACTUAL NUMBER OF DEATHS, WITH DEATH RATES,* FOR CERTAIN AREAS AND CITIES IN NEW YORK STATE FOR EACH OF THE FIRST SIX MONTHS OF 1918 SHOWING CERTAIN RESULTS OF DEDUCTION AND ALLOCATION OF SO-CALLED NON-RESIDENT DEATHS.

District	Estimated Population 1918	Actual Number of Deaths	Non-Residents Deducted	Non-Residents Added	Net Increase	Net Decrease	Total Resident Deaths	Actual Death Rate	Resident Death Rate	Net Increase	Net Decrease
New York City	5,872,143										
January		7,960	46	129	83		8,043	16.0	16.2	.2	
February		6,889	27	119	92		6,981	15.3	15.5	.2	
March		9,114	34	136	102		9,216	18.3	18.5	.2	
April		7,810	24	155	131		7,941	16.2	16.5	.3	
May		6,101	26	146	120		6,221	12.3	12.5	.2	
June		5,235	34	124	90		5,325	10.9	11.1	.2	
Rest of State	4,809,515										
January		6,543	647	564		83	6,460	16.0	15.8		.2
February		6,055	514	422		92	5,963	16.4	16.1		.2
March		6,900	647	545		102	6,798	16.9	16.7		.2
April		6,934	588	457		131	6,803	17.6	17.3		.3
May		5,979	560	440		120	5,859	14.7	14.4		.3
June		5,273	464	374		90	5,183	13.4	13.1		.3
Cities (Exc. N. Y. C.)	2,362,586										
January		3,317	222	237	15		3,332	16.6	16.7	.1	
February		3,039	172	196	24		3,063	16.7	16.9	.2	
March		3,511	251	245		6	3,505	17.5	17.5		
April		3,604	219	189		30	3,574	18.6	18.5		.1
May		2,999	243	178		65	2,934	15.0	14.7		.3
June		2,608	184	155		29	2,579	13.5	13.3		.2
Rural	2,446,929										
January		2,908	120	327	207		3,115	14.0	15.0	1.0	
February		2,719	94	226	132		2,851	14.4	15.1	.7	
March		3,070	105	300	195		3,265	14.8	15.7	.9	
April		2,999	101	268	167		3,166	15.0	15.8	.8	
May		2,686	75	262	187		2,873	13.0	13.9	.9	
June		2,406	89	219	130		2,536	12.0	12.6	.6	
Institutions (State)											
January		318	305			305	13				
February		297	248			248	49				
March		319	291			291	28				
April		331	268			268	63				
May		294	242			242	52				
June		259	191			191	68				
I—Cities (over 175,000)	740,487										
January		1,003	56	58	2		1,005	16.0	16.0		
February		922	35	13			935	16.2	16.4	.2	
March		1,035	58	53		5	1,030	16.5	16.4		.1
April		1,081	44	43		1	1,080	17.8	17.8		
May		902	43	29		14	888	14.4	14.2		.2
June		780	29	22		7	733	12.9	12.7		.2
II—Cities (50,000–175,000)	659,231										
January		992	80	62		18	974	17.8	17.4		.4
February		894	50	59	9		903	17.6	17.8	.2	
March		1,042	84	67		17	1,025	18.7	18.3		.4
April		1,095	89	50		39	1,056	20.3	19.5		.8
May		874	79	53		26	848	15.6	15.2		.4
June		752	51	48		3	749	13.9	13.9		
IIIA—Cities (20,000–50,000)	505,216										
January		678	38	39	1		679	15.8	15.9	.1	
February		632	39	42	3		635	16.3	16.3		
March		737	48	44		4	733	17.2	17.1		.1
April		740	37	38	1		741	17.9	17.9		
May		618	61	31		30	588	14.4	13.7		.7
June		567	58	36		22	545	13.7	13.2		.5
IIIB—Cities (10,000–20,000)	374,194										
January		537	37	60	23		560	16.9	17.7	.8	
February		487	32	35	3		490	16.9	17.	.1	
March		560	45	60	15		575	17.7	18.1	.4	
April		571	41	41			571	18.6	18.6		
May		466	45	50	5		471	14.7	14.9	.2	
June		413	37	37			413	13.5	13.5		
IIIC—Cities (Under 10,000)	83,458										
January		107	11	18	7		114	15.1	16.1	1.0	
February		104	16	12		4	100	16.2	15.6		.6
March		137	16	21	5		142	19.4	20.1	.7	
April		117	8	17	9		126	17.1	18.4	1.3	
May		139	15	15			139	19.7	19.7		
June		96	9	12	3		99	14.0	14.5	.5	

* Rates per 1,000 population.

ESTIMATED POPULATION AND ACTUAL NUMBER OF DEATHS WITH DEATH RATES,* ETC.—*Continued.*

District	Estimated Population 1918	Actual Number of Deaths	Non-Residents Deducted	Non-Residents Added	Net Increase	Net Decrease	Total Resident Deaths	Actual Death Rate	Resident Death Rate	Net Increase	Net Decrease
Buffalo	471,979										
January		667	36	26		10	657	16.7	16.4		.3
February		604	22	27	5		609	16.6	16.8	.2	
March		683	36	27		9	674	17.1	16.9		.2
April		714	28	14		14	700	18.5	18.1		.4
May		616	24	10		14	602	15.4	15.0		.4
June		539	19	10		9	530	13.9	13.7		.2
Rochester	268,508										
January		336	20	32	12		348	14.8	15.3	.5	
February		318	13	21	8		326	15.4	15.8	.4	
March		352	22	26	4		356	15.5	15.6	.1	
April		367	16	29	13		380	16.7	17.3	.6	
May		286	19	19			286	12.6	12.6		
June		241	10	12	2		243	11.0	11.0		
Albany	112,551										
January		190	16	6		10	180	19.9	18.9		1.
February		165	18	7		11	154	19.1	17.8		1.3
March		204	30	16		14	190	21.4	19.9		1.5
April		196	21	10		11	185	21.2	20.1		1.1
May		158	23	7		16	142	16.6	14.2		2.4
June		145	14	6		8	137	15.7	14.9		.8
Binghamton	56,667										
January		79	12	3		9	70	16.5	14.6		1.9
February		78	2	3	1		79	17.9	18.1	.2	
March		96	12	7		5	91	20.0	18.9		1.1
April		73	7	9	2		75	15.7	16.1	.4	
May		85	2	3	1		86	17.7	17.9	.2	
June		72	3	9	6		78	15.5	16.8	1.3	
Schenectady	84,539										
January		107	7	6		1	106	14.9	14.8		.1
February		91	1	8	7		98	14.0	15.1	1.1	
March		118		5	5		123	16.5	17.2	.7	
April		113	7	2		5	108	16.3	15.6		.7
May		96	9	3		6	90	13.4	12.6		.6
June		82	7	3		4	78	11.8	11.3		.5
Syracuse	149,616										
January		209	17	17			209	16.5	16.5		
February		213	9	16	7		220	18.5	19.1	.6	
March		239	12	13	1		240	18.8	18.9	.1	
April		303	20	13		7	296	24.7	24.1		.6
May		199	15	11		4	195	15.7	15.4		.3
June		174	7	15	8		182	14.2	14.8	.6	
Troy	74,679										
January		158	21	6		15	143	24.7	22.4		2.3
February		131	13	5		8	123	22.8	21.4		1.4
March		142	22	9		13	129	22.2	20.2		2.
April		160	25	4		21	139	25.9	22.5		3.4
May		119	18	7		11	108	18.6	16.9		1.7
June		103	9	5		4	99	16.6	16.0		.6
Utica	84,015										
January		134	6	13	7		141	18.8	19.8	1.	
February		110	5	14	9		119	17.0	18.4	1.4	
March		128	6	8	2		130	18.0	18.3	.3	
April		154	9	8		1	153	22.4	22.2		.2
May		129	12	11		1	128	18.1	18.0		.1
June		97	9	4		5	92	14.1	13.4		.7
Yonkers	97,164										
January		115	1	11	10		125	14.0	15.3	1.3	
February		106	2	6	4		110	14.2	14.7	.5	
March		115	2	9	7		122	14.0	14.8	.8	
April		96		4	4		100	12.1	12.6	.5	
May		88		11	11		99	10.7	12.0	1.3	
June		79	2	6	4		83	9.9	10.4	.5	

*Rates per 1,000 population.

NOTE TO THE TABLES. In these three tables the population estimates are based upon the changes shown between the United States Census of 1910 and the State enumeration of 1915, except New York City, which is based upon the United States Census of 1900 and 1910. The title "State Institutions" does not include all the State institutions but only those outside of New York City in which deaths occur. The State institutional deaths which could not be allocated remain charged to the institutions in the column under "Total Resident Deaths." Fifteen per cent of these deaths could not be transferred to a former or usual residence. The numbers of deaths in the tables are the provisional totals published in the New York State Department of Health Official Bulletin and are subject to correction for final publication; but the factor of error involved, due chiefly to delayed returns, is negligible for the present purpose.

ESTIMATED POPULATION AND ACTUAL NUMBER OF DEATHS, WITH DEATH RATES,* FOR CERTAIN AREAS AND CITIES IN NEW YORK STATE FOR THE FIRST HALF YEAR OF 1918 SHOWING CERTAIN RESULTS OF DEDUCTION AND ALLOCATION OF SO-CALLED NONRESIDENT DEATHS.

District	Estimated Population 1918	Actual Number of Deaths	Non-Residents Deducted	Non-Residents Added	Net Increase	Net Decrease	Total Resident Deaths	Actual Death Rate	Resident Death Rate	Net Increase	Net Decrease
New York City	5,872,143	43,109	191	809	618		43,727	14.7	14.9	.2	
Rest of State	4,809,515	37,684	3,420	2,802		618	37,066	15.7	15.4		.3
Cities (Exc. N. Y. C.)	2,362,586	19,078	1,291	1,200		91	18,987	16.2	16.1		.1
Rural	2,446,929	16,788	584	1,602	1,018		17,806	13.7	14.6	1.9	
Institutions (State)		1,818	1,545			1,545	273				
I—Cities (over 175,000)	740,487	5,723	265	253		12	5,711	15.5	15.4		.1
II—Cities (50,000–175,000)	659,231	5,649	433	339		94	5,555	17.1	16.9		.2
IIIA—Cities (20,000–50,000)	505,216	3,972	281	230		51	3,921	15.7	15.5	.3	.2
IIIB—Cities (10,000–20,000)	374,194	3,034	237	283	46		3,080	16.2	16.5	.5	
IIIC—Cities (under 10,000)	83,458	700	75	95	20		720	16.8	17.3		
Buffalo	471,979	3,823	165	114		51	3,772	16.2	16.0		.2
Rochester	268,508	1,900	100	139	39		1,939	14.2	14.4	.2	
Albany	112,551	1,058	122	52		70	988	18.8	17.6		1.2
Binghamton	56,667	483	38	34		4	479	17.0	16.9		.1
Schenectady	84,539	607	31	27		4	603	14.4	14.3		.1
Syracuse	149,616	1,337	80	85	5		1,342	17.9	17.9	.0	
Troy	74,679	813	108	36		72	741	21.8	19.8		2.0
Utica	84,015	752	47	58	11		763	17.9	18.2	.3	
Yonkers	97,164	599	7	47	40		639	12.3	13.2	.9	

* Rates per 1,000 population.

former or usual residence given is a suburban district of that city, but the duration of residence in the city is given as "lifetime," shall be charged to the district of usual residence, unless there is evidence on the certificate indicating or warranting the inference that the cause of death originated in the city.*

(6) When two or more causes of death are given jointly, the International List of Joint Causes shall be used as a guide to preference of cause for allocation of the death.

(7) If the district in which the cause of death originated is stated, the death shall be charged to such district unless this statement is inconsistent with other data on the certificate, then the procedure in rule (4) above shall be followed.

Space does not permit of a detailed consideration of the reasons for the adoption of each item of the definition or of its applications, but many will be readily evident if considered in the light of all the foregoing considerations. Appearing at first to be cumbersome and complicated the definition and rules were found to be readily applicable, and selection and decision on various groups of death certificates concerned was made rapidly and uniformly.

A few preliminary results of the study were shown in the provisional monthly tabulations published in the *New York State Health Department Official Bulletin* for the first six months of the year 1918, and are shown in the table printed below. It is hoped to prepare a final report and tabulations to show the results of deduction and transference for the entire calendar year 1918 and by months, between the following areas: New York City and the state exclusive of it; total urban and total rural areas; the total institutional districts, individual cities, and the total urban and rural areas of each county. This is as detailed as it is practicable to show the results, especially for the short period of 1 year as the numbers involved in villages and towns would be insignificantly small.

* Many persons residing in the suburbs of a large city such as New York, or within commuting distance of it, regard themselves as citizens of such city, especially if they were born therein, are employed there, or have resided therein during various periods of their lives.



This striking poster, issued by the Surgeon General of the Army, shows the high type of illustration now set before the demobilized soldiers.

THE BACTERIOLOGICAL DILUTION SCALE AND THE DILUTION AS A BACTERIOLOGICAL UNIT.

WILLIAM FIRTH WELLS,
Captain Sanitary Corps, U. S. A.

Practical pollution-meter provided. Why not express results directly in terms of bacteriological findings? Simplest of scales has mathematical as well as technical advantages. A long step towards solving some of the annoying troubles of bacteriological computation.

THE bacteriological measuring scale fundamentally differs from most instruments of measure. A single application determines whether bacteria are contained in sample quantities ranging from one liter, in the case of excellent drinking water, to a millionth of a cubic centimeter, in the case of crude sewage. Such an immense range is difficult to conceive. What instrument of linear measure can determine distances ranging from a yard to the circumference of the earth, or what balance can compare weights ranging from a kilogram to a millionth of a gram? Little attention has been given to the nature of this scale, which is the most important consideration in quantitative bacteriology.

Yet practical bacteriologists have evolved a remarkable technical scale of dilutions admirably adapted to the problem. By inoculating a series of culture tubes with successive dilutions of the sample, it is possible in a limited number of proportional steps to span the whole range of bacterial content. The intelligent application of this scale eliminates errors compared to which the secondary qualitative disagreements become negligible* and gives an instrument for measuring grades of pollution far more sensitive than is demanded by the indefinite standards of interpretation.

Although instinctively interpreting their results in accordance with the technical procedure, bacteriologists have been reluctant to express them mathematically in terms of the scale. Houston has gone so far as to assign grades or classes such as A, B, C, D, etc., to waters accordingly as B. coli are generally present or absent in 10 cc.; 1cc.; .1 cc.; .01 cc., etc. This is a direct attempt to make the dilution the bacteriological unit of measure, and the bacteriological dilution scale logically follows based upon the dilution unit.

More closely studied such a scale proves to have interesting mathematical relations. Instead of adding successive units, each degree is obtained by multiplying the former one by ten. The steps are, therefore, in geometrical progression and the scale is a geometrical scale. Since the multiplier is the base of common logarithms, the scale of dilutions corresponds to the number of bacteria, indicated by that dilution, as does the logarithmic scale relate to the scale of numbers. For the practical laboratory man it is sufficient to derive a few simple rules of manipulation which follow from the relationship of the dilution scale to a geometrical scale.

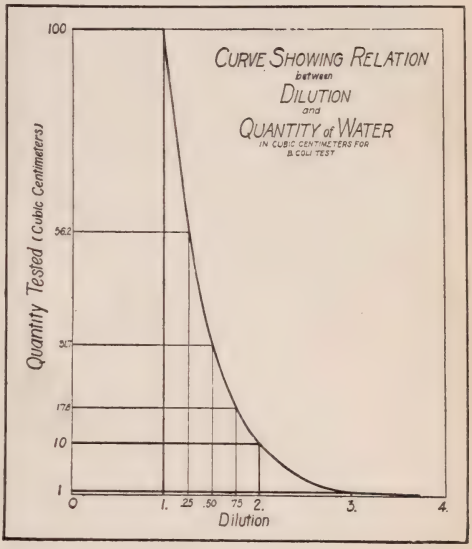
* The Practicability of Adopting Standards of Quality for Water Supplies. Robert B. Morse and Abel Wolman, pp. 198–228, Jour. Am. W. W. Assn., Vol. 5, No. 3, September 1918.

It is essential, first, to have the "dilution" clearly defined. To bacteriologists it signifies the quantity obtained by diluting one cubic centimeter of sample with nine cubic centimeters of sterile water, and then removing one cubic centimeter for test. The first "dilution" thus signifies .1 cc. of sample; the second "dilution" .01 cc., of sample; the third "dilution" .001 cc., etc. If it be possible to conceive the term applied to an extension of the scale in the reverse direction, 1 cc. quantity would be considered to have a "dilution" of 0; 10 cc. a "dilution" of −1; 100 cc. a "dilution" of −2; etc. In any case the "dilution" unit would be the degree between two quantities, of which one is ten times as great as the other. A succession of these units would constitute a "dilution scale," arbitrarily designated for simplicity or convenience.

For purposes of water analysis, in testing for B. coli, where the greatest application of the dilution method occurs, the liter is chosen as a unit quantity for several practical reasons. The liter, therefore, would have a "dilution" of zero, which represents the best conditions tested in a drinking water. One hundred cubic centimeters would be considered the first "dilution" of the liter; ten cubic centimeters the second "dilution"; one cubic centimeter the third, and so forth. The relation between the "dilution scale" and the quantity scale is as follows: (Table I.)

An attempt has been made in Chart I to plot this relation, but so rapidly does the quantity change with the "dilution" that it is impossible to plot more than three "dilutions" directly. In order to plot more "dilutions" it is necessary to

CHART I.



plot the "quantities" on a logarithmic scale as is done on Chart No. II. There will then be ten whole "dilutions" between the limits of excellence in a drinking water and the maximum number of B. coli in crude sewage, which gives ten classes or grades of pollution.

The subdivision of these classes and the interpretation of intermediate or fractional "dilutions" is the next question to arise. The same principle applies as for whole "dilutions," that is, they are the corresponding points on the geometrical scale. Thus twice diluting by the "half" "dilution" gives the "whole" "dilution." The factor is, therefore,

TABLE I.

RELATION BETWEEN QUANTITY AND "DILUTION" SCALES.

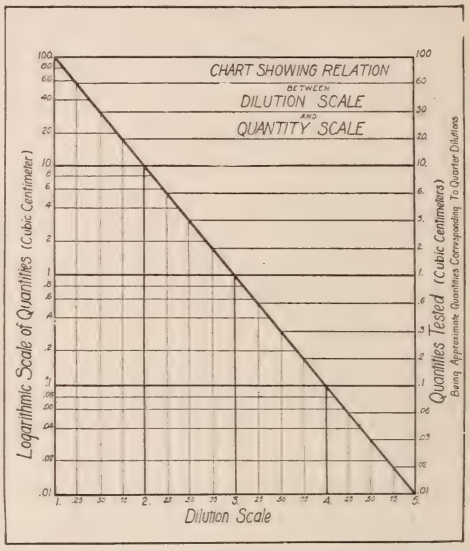
Cubic Centimeters.

Quantity	1000	100	10	1.	.1	.01	.001	.0001	.00001	.000001
"Dilution"	0	1	2	3	4	5	6	7	8	9

approximately 3.17, because 1 : 3.17 x 1 : 3.17 = 1 : 10. Likewise the "quarter" "dilution," 1.78, diluted a second time gives 3.17, the "half" "dilution"; a third time gives 5.62, the "three quarters" "dilution"; and a fourth time gives 10, the "whole" "dilution." This is illustrated in Chart No. I, where the "dilution" between 100 cc. and 10 cc. has been divided into four parts and the corresponding quantities derived. Since the first significant figure only is needed in bacteriological work the following table gives a simple summary of the "dilution scale" divided as far as quarter "dilutions." They are also graphically represented on Chart No. II. In a like manner the quantity corresponding to any "dilution" can be obtained directly from logarithmic tables.

The simplicity of the "dilution scale" as a mathematical register of the technical steps of procedure in bacteriological analysis leads to similar simplicity in arithmetical computations. The record of an individual test is merely the statement of the highest positive "dilution," of course after reverting, where necessary, higher "dilutions" which may be positive when lower ones happen by chance to be negative. This "dilution" will be called the "dilution positive" to distinguish it from other positive "dilutions." In summarizing several tests the "dilutions positive" are added up and averaged. The result may be called the "average dilution positive." The procedure is extremely simple and gives a result which can be interpreted directly in terms of the "dilution scale." (The mathematical characteristics of the "average dilution positive" and the other simple methods of obtaining it, together with simple methods of converting it into the "geometrical mean" number of bacteria represented are given in other papers.*)

CHART II.



There are two general purposes in the test for B. coli in water. First, water is tested directly to tell whether it is suitable for drinking purposes. The United States Treasury standard passes a water

* The Geometrical Mean as a B. coli Index, Science N. S. Vol. XLVII, No. 1202, pp. 46–48, Jan. 11, 1918.

TABLE II.

TABLE FOR CONVERTING "DILUTIONS" INTO QUANTITIES.

Cubic Centimeters.

"Dilution"	.00	.25	.50	.75
0	1000.	600.	300.	200.
1	100.	60.	30.	20.
2	10.	6.	3.	2.
3	1.	.6	.3	.2
4	.1	.06	.03	.02 etc.

which does not yield B. coli in more than two of ten fermentation tubes inoculated with ten cc. of water. This corresponds to an "average dilution positive" of 1.2 on the "dilution scale." How much better or worse a water is than this standard is given by its computed position on the scale.

The second purpose of the test is to determine the grade of pollution, in order to test the efficiency of treatment, or in sanitary surveys and investigations to discover the nature and history of pollution in waters. It is interesting to note that in the journal which contained a paper above mentioned, one of the authors proposes an index of filter plant efficiency based on the same principle.* The ratios of the logarithms of the bacterial counts are considered a truer index of filter plant performance than the ratios of the counts themselves, because of the geometric nature of bacterial results. This is nothing more than the ratio of the "average dilutions positive" if the bacterial count had been determined and expressed by "dilutions." The latter would be a much simpler method of obtaining the result and is suggested for obtaining the index of efficiency of B. coli removal.

Another application of this same principle was made by Prof. Earle B. Phelps in an effort to make averages of milk counts more rational. He suggested averaging the logarithms of the counts and finding the geometric mean in this way. It was found by experience that straight arithmetical averages gave a wrong impression of true conditions. As before, had the number of bacteria been determined by the "dilution" method, the "average dilution positive" would have been a fair statement of conditions on the "dilution scale" or be converted directly into the "geometrical mean."

Lastly I wish to mention two of the principal characteristics of bacterial life which suggest the reason for the nature of the "dilution scale." First the rate of growth is a geometrical progression which means that the relation between time and "dilution positive" is constant. If the "dilution" content of a medium changes one "dilution" in a given time, it will change another "dilution" in the same time. Also the death-rate or the rate of disinfection follows the same law in the reverse direction. The length of time it takes the "dilution" content to drop one "dilution" would be a good constant of disinfection. Similarly in the natural purification of streams the disappearance rate of bacteria can be very conveniently expressed in terms of "dilutions." In the data obtained under the supervision of Surgeon H. S. Cumming in the investigation of the Potomac River, Capt. H. P. Letton and the author computed the rate of decrease of B. coli under natural conditions and found it to follow very closely the "dilution" law.

The computations were never published, but are plotted on Chart I, opposite page 128, Hygienic Laboratory Bulletin 104. The striking similarity to the curve shown on Chart I above is an instance of the close confirmation of theory by practice.

* A Preliminary Analysis of the Degree and Nature of Bacterial Removal in Filtration Plants, Abel Wolman, pp. 272–278, Vol. 5, No. 3, Proc. 38th Year of Jour. of Am. Water Works Assn., September, 1918.



Remember—New Orleans—October 27–30, 1919.

WHY IS POOR VENTILATION HARMFUL?

A DISCUSSION OF THE FUNDAMENTAL PSYCHOLOGIC BASES FOR CURRENT VIEWS.

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Ventilation is a much discussed matter in which doctors and engineers are by no means all agreed. Mr. Reed presents a comprehensive, up-to-date consideration that is enlightening. He says that the last word has not been said yet. Note his careful bibliography.

I. INTRODUCTION.

FOR some years past there has been a gradual development of the idea that the harmful effects of bad ventilation are closely correlated with high temperature and high humidity. This view has been widely accepted, especially in the light of many observations of a general nature. There have been many practical developments by heating and ventilating engineers based on this view and it is generally agreed that the sum total of the results observed have been confirmatory.

However, in the development of the more practical points investigators and those interested in the commercial and industrial development and application of artificial ventilation schemes have apparently lost sight, for the time, of the fundamental physiological facts which constitute the real support for the idea. For this reason, then, an attempt is herein made to collect, in part, the basic physiologic evidence and present it in such a way that those interested may understand more fully why the factors of increased temperature and moisture of the surrounding atmosphere are harmful to the human body.

Investigators in this field have too frequently dealt with more extreme and crucial conditions and overlooked some of the less apparent but equally important facts of slightly accelerated or slightly inhibited physiological reactions which have a direct bearing on the general condition of the organism, but yet can hardly be considered pathological. It is in this field that the industrial hygienist may find his greatest interest.

II. HISTORICAL.

Many and diverse were the notions of early investigators along this line. Most of these may be passed over. However, the observations of Mayow (1) are of importance because they so closely parallel the fallacy of the early physiologists of the modern period, as well as the notion still present among the laity, *i. e.*, that the noxious effects of air in occupied rooms are due to expired substances. This pioneer investigator ascribed the death of animals in confined chambers to their consumption of "nitro-aërial spirit" in the air and to the giving off of "noxious vapors."

Although later researches definitely established the fact that the "nitro-aërial spirit" was oxygen and the "noxious vapors" carbon dioxide, the old idea persisted among physiologists until, in 1851, Gavarret (2) found that when oxygen was supplied and carbon dioxide was removed so as to keep up the normal constitution of the air in a chamber in which animals were confined, the animals still died. Hammond (3) obtained similar results a few years later.

An explanation of this occurrence was offered by Brown-Sequard and D'Arsonval (4) when they claimed to have shown that the harmful effects depended on the presence of a toxic, volatile, organic substance, the result of respiratory processes, to which the name "anthropotoxin" was assigned. This hypothesis persisted among certain groups until quite recently.

In the meantime many other investigations had produced evidence tending to show that lack of oxygen and increased carbon dioxide were not responsible for any of the observed harmful effects except under very unusual conditions. Among these were Leblanc (5) who showed that the oxygen content of an occupied room seldom was decreased below 20 per cent. Regnault and Reiset (6) then showed that a decrease of 10 per cent in oxygen content of the air was necessary to produce any laborious effort of respiration. Müller (7), Bert (8) and Von Pettenkofer (9) have all produced evidence showing that percentages of CO_2 equal to or greater than the normal content of the air could be inhaled without any harmful physiological manifestations.

The old idea of a toxic substance was revived by Rosenau and Amoss (10), who claimed to have produced anaphylactic sensitization of guinea-pigs by means of condensed products of expired air. Sewall (11) has also suggested something similar, though from a somewhat different viewpoint. However, this point has, it seems, been definitely settled by Weisman (12) and by the experiments of the New York Ventilating Commission (13), so that it may be safely stated that there is no toxic, organic substance in expired air that can account for the harmful effects observed.

III. Observations and Experimental Evidence.

Along with the death of the old ideas, a new conception began to be developed which had its first champion in Hermans (14), who suggested that the harmful effects noted in ill-ventilated rooms resulted from the increased temperature and moisture of the air preventing the body from maintaining a proper thermal balance. Many others, notably Haldane (15) and his co-workers, made observations supporting this view, but it was not until the work of the latter was published in 1905 that the new conception came to be considered more generally, though it had received valuable support several years before in the work of Billings, Mitchell and Bergey (16).

It will be necessary for the moment to go back again among the pioneers in the field of the physiology of respiration in order to gather the evidence upon which this new conception was based. As a working basis it may be stated that the general problem of bad ventilation is inseparably linked with that of respiration, and the original investigations all deal primarily with the latter.

More than one hundred and thirty years ago Lavoisier (17) found that a man in repose and fasting, at an external temperature of 32.5° R., consumed per hour 24.002 l. of O_2 while a man fasting and doing work necessary to raise in 15 minutes a weight of 7.343 K. to a height of 199.776 m., consumed per hour 63.477 l. of O_2. Increased activity then means an increase in oxygen consumption. Later evidence produced by numerous investigators, most notable perhaps that of Benedict and his co-workers, in calorimetric experiments have shown that oxygen consumption means heat production. Since man is a relatively homoiothermous organism, it follows that increased heat production from activity means approximately proportionate heat elimination.

Quite recently McDonald (18) performed experiments in which a man

pedaling a bicycle ergometer, having a surface temperature of 34° C. increased his surface temperature 0.5° C. in one hour, the rectal temperature remaining constant. Heat production increased about 100 calories per hour. The following table is presented to further illustrate this result:

Mechanical Work Performed	Aver. Heat Production in Calories	H. P.
13 K	182	0.02
19 K	199	0.03
43 K	297	0.07
56 K	346	0.09

The rectal temperature remaining constant while the surface temperature increased, indicates an effort on the part of the organism to eliminate the excess heat through the surface.

It has also been established that the carbon dioxide output is greatly increased in muscular work so that the respiratory quotient is increased (19). The following table illustrates this point (20):

	Ave. CO_2 Output	Ave. O_2 Consumption	True Resp. Quotient
At rest	5.75	14.75	.90
After exercise	6.79	14.02	.99

Bayliss (21) affirms that the only source of heat that is of practical importance lies in muscular contractions, and if the heat is not allowed to escape there is a normal temperature fluctuation range of about 4° C.

Hill (22) asserts that there is as much heat liberated in the period immediately following a muscular contraction as there is during the period of actually contracted state. He further states that anything diminishing oxygen tension will slow the liberation of heat.

The increased elimination of CO_2 in activity has already been alluded to, and in this connection it may be stated that the proportionate elimination of this product in rest, moderate exercise and hard work is, roughly, as 2 : 3 : 6. (23). Schierbeck (24) states that while there is ordinarily not a large percentage of CO_2 eliminated from the skin, this part is given off through the sweat glands. Between the temperatures of 29° C. and 33° C., the amount is about constant, but between 33° C. and 37° C., the amount is increased three to four-fold with the body completely at rest throughout the experiment. This observation is especially interesting when taken in connection with the work of V. Willbrand (25) who asserts that, when the body is completely at rest, there is an increase in the elimination of water in proportion to the rise of external temperature.

While many other experiments have been done along these lines, it is sufficient on the basis of the evidence presented to state that muscular exercise increases in general the output of metabolic products and of heat. While it is evident that the elimination of waste products as well as heat must go on unhindered in order for the body to maintain its highest physiologic efficiency, our problem deals only with heat elimination and for the time, at least, the discussion must be confined to this factor.

Returning again, then, to the question of the observed effects of poor conditions of ventilation, Flügge (26) and his collaborators added to the evidence that such effects were due to heat stagnation and Hill (27) and his colleagues confirmed those results some years later.

With the great mass of evidence already accumulated as a working basis, the New York Ventilating Commission attacked the problem on a large scale with well controlled apparatus, and carried out many valuable experiments, deducing

much unquestioned evidence in an effort to correlate observed phenomena with fundamental physiological laws. One of the earliest results dealt with the effects of increased humidity and temperature on the vascular system (28), showing that the Crampton index of vasotone was increased or improved at 20° C., 50 per cent relative humidity, and decreased at 30° C., 80 per cent humidity. The Barach index of cardiovascular energy fell under the first conditions, but under the second it rose beyond that assigned by the originator for a normal individual.

The lowering of vasotone interferes with ready adaptation of the vascular mechanism to changes of position or to reflex stimulation. This would unquestionably be a factor in the earliest onset of fatigue, in that muscles and other organs might not be readily supplied with blood.

Another result of this series of experiments was the observation that the heart rate is increased in hot, humid atmospheres, in about the same proportion as in moderate exercise. If then, there is moderate exercise under such conditions, the effect is comparable to that of violent exercise under favorable conditions and will fatigue the body in proportion.

These results confirm the observations of Moorehouse (29) that increased surrounding temperature increases the heart rate, the respiration rate, and so decreases the respiratory volume, and induces vasodilatation. This author asserts that the increased heart rate is due to direct action on the heart muscle. The latter assertion is, however, denied by Martin, Gruber and Lanman (30), who made observations on men running upstairs on a hot, humid day. A summary of the results is given in the following table.

These experiments are significant in view of the fact that they illustrate the close relationship between the effects of

	Preliminary	Maximum	4 Min. After	24 Min. After	64 Min. After
Ave. pulse rates..	57	160	99	70	70
Ave. temp. °C....	36.73	37.42	37.42	37.15	36.95

fatigue and the effects of increased temperature of the body. A further important indication of this relationship is found in the fact that the effect of normal fatigue substances on normal muscle is one of depression just as the effect of temperature is depressing. It is suggested that, in some way, poor conditions of ventilation produce effects that are manifested in the physiologic machine in much the same way as the effects of fatigue are manifested.

A comparison of metabolic activity in fatigue with that under increased temperatures serves further to illustrate this relationship. Harper and Halliday (31) performed a series of experiments extending over a nine-day period, during the first three days of which the subjects were at rest, the second three day period undergoing exertion and the third period of three days at rest again. During the second period the average pulse rate increased from 100 to 193 and the temperature from 98.3° F. to 99.1° F. Nitrogen excretion was increased as follows:

First period	15.7032
Second period	16.2505
Third period	15.0685

The nitrogen depended on increased elimination of ammonia, uric acid and xanthine. The specific gravity of the urine and the excretion of urates were also increased during the middle period.

Argutinsky (32) has shown that the nitrogen excreted from the skin may amount to about 4.7 per cent of that excreted from the urine.

These results are of special significance when considered in the light of the fact that in febrile diseases, in general, there is an increased output of nitrogen, which indicates destruction of tissue and protein, and there are probably also found toxic protein products, resulting from incomplete oxidation of intermediate products of protein metabolism.

The increased output of ammonia indicates acid intoxication. Acetone, diacetic acid and oxybutyric acid are also found in these cases.

While it is probably unfair to compare the observations on pathological subjects with those made on normal subjects, the comparison does indicate the trend of activity in fatigue, which, if carried far enough, would undoubtedly result in metabolic activities resembling those observed under pathological conditions of febrile diseases.

Fletcher and Hopkins (33) have found that the lactic acid content of amphibian muscle is increased by heating at 40° C. and that if the muscle is placed in an atmosphere of oxygen, the lactic acid formed will soon disappear. This increase does not occur at 30° C. It is well known that lactic acid is formed in fatigue of isolated muscle and that it will disappear in exactly the same way if the muscle is suspended in oxygen. If, then, we may suppose that the processes are similar in the two cases, the fact observed previously by Fletcher (34), that the rigor induced in muscle by fatigue, or warming is accompanied by a loss of osmotic properties, is of great importance, as it may be possible that this is a partial factor in lessening the working power of muscle in increased temperatures.

In a discussion of the effects of changes of arterial pressure on fatigue Gruber (35) asserts that a rise in pressure increases the contractile efficiency of a muscle because fatigue products are more readily removed. It seems that this fact may bear some relation to the lowering of blood pressure with increased temperature and to the observation of Patrizi (36) that human muscles subjected to localized hot baths are more readily fatigued than if normal.

The combined work of numerous investigators has established the fact that the average man gives off approximately 24 calories of heat per kilogram of body weight in 24 hours and that for every square meter of body surface there is produced in 24 hours from 700 to 1,000 calories (37). This indicates that metabolism is proportional to body surface area. From 85 to 90 per cent of all heat loss takes place through the skin by evaporation of perspiration, by radiation, convection, and conduction. In raising the external temperature from 7° C. to 30° C., the heat loss by radiation and conduction is cut down 58 per cent. A partial balance is maintained by an increased loss by evaporation of about 300 per cent. However, the total metabolism measured in calories is decreased about 35 per cent. The percentage variation is greater at higher temperatures. If, at the same time, the moisture content of the atmosphere is increased it will cut down, progressively, the amount of heat loss by evaporation. The efficiency of metabolism will then be affected in the ways already shown.

Furthermore, "in a moist and humid atmosphere the blood vessels of the skin are dilated and overcharged with blood, and the brain and spinal cord, among other tissues, are rendered correspondingly anemic. This is sufficient to account largely for the feeling of weariness, the indifference and apathy toward laboring that are then present" (38).

There are two methods of controlling heat production in the body, namely, by food consumption and by muscular exer-

cise. If heat elimination is interfered with in any way, as would occur in case of an increase of temperature or humidity, or both, in the surrounding atmosphere, the physiological mechanism will try to compensate for this by decreasing heat production. This alone would tend toward a decrease of muscular activity. But if muscular activity continues, it inevitably follows that body temperature will rise. Then will follow the effects on the tissues which have already been indicated. A further evidence of this is found in the fact that the carbon dioxide output, which is taken as a measure of metabolism, is decreased with a rise of atmospheric temperature even though the body temperature remains constant. Thus, to maintain a constant body temperature, metabolism must be cut down and this is done reflexly through the heat regulating center, and not by voluntary exercise of the will, or as a result of the unpleasant sensation of warmth.

The value of such control is illustrated by the case of a man under the observation of Zuntz, who possessed no sweat glands and who thus experienced a rise of body temperature to 40° or 41° C. on the slightest muscular effort, and was totally incapacitated for work in summer, as a result.

IV. Discussion.

Thus far it is apparent that high temperature and humidity of the air tend first to decrease metabolic and muscular activity though the exact interrelation of these two factors is not yet certainly determined in this particular connection. If the external conditions persist there is a sufficient interference with heat loss that the body temperature will be increased. This increase, while slight, is still sufficient to interfere with body processes, though in what ways is not yet specifically known, except that it appears that there may be a relationship between metabolism in fatigue without increased body temperature and in increased temperature exertion.

In an effort to find out how much decreased activity under unfavorable conditions of ventilation is due to disinclination, a series of determinations of the blood sugar was made by Lee and Scott (39) with the result that cats confined under conditions of 33.08° C. and 89.5 per cent humidity showed only 87 per cent of a previously determined normal blood sugar content. In another series (40), in which the most unfavorable condition was one of 33° C., 90 per cent humidity, the blood sugar was only 94 per cent of normal. The total amount of blood also was decreased by 8 per cent. In this series the working power of the muscles was tested and it was found that those from animals under conditions of 33° C., 90 per cent humidity, showed a decrease of 11 per cent in the duration of the lengths of working periods and a decrease of 24 per cent in the total amount of work done. From these results it is apparent that the lessened efficiency under unfavorable conditions is not due to inclination, nor alone to anemia of the nervous system as has been suggested.

One other important observation by the New York Ventilating Commission was that the appetite, as measured in calories of food consumption, was decreased in human subjects in an unventilated room even when moisture and temperature are controlled and there are no other unfavorable manifestations (41). It is suggested that this may, in some way, be correlated with a slight decrease in oxygen. A further conclusion was that neither excessive carbon dioxide nor bad odors in any way caused any discomfort or decrease in efficiency.

While the deleterious, physiological effects of increased moisture and temperature are of themselves sufficient argu-

ment for improvement of such conditions, there are many other points that must have consideration. "One of the most important conditions influencing both chemical and pharmacological reactions is temperature" (42). A moderate increase of temperature—within physiological limits—will augment the action of drugs, whether harmful or not. It follows, then, that any substance, whether exogenous or endogenous, will act more powerfully on the body, even if the body temperature rises less than one degree, and from this it follows that workers in a hot, moist atmosphere would be less resistant to substances breathed or ingested and to auto-intoxicant products of fatigue or metabolic activity. The first of these two conditions is well illustrated by recent observations on mustard gas, which is found to be from three to four times as destructive at 20° C. as at 10°, though the fundamental reason for this is not yet apparent. In view of the recent claim of Segále (43) that the heat of inflammatory processes has its origin in the biochemical activity of the cellular elements, it seems possible that an intoxicant action once started under unfavorable conditions of temperature might work in a vicious circle by local generation of heat.

Another recent development of possible interest, whose significance cannot yet be determined, though it may be a factor in bodily resistance variations, is the recent claim of Murphy and Sturm (44) that the blood of animals exposed to heat shows an initial fall of the total white count by decrease of both lymphocytes and polynuclears, followed by a rise in both elements. Nakahara (45) claims that the resultant lymphocytosis is due to increased proliferation in the germinal centers of the spleen and in the lymph glands, in reaction to destruction of lymphocytes by heat.

Another possible factor in the explanation of the fundamental reactions responsible for the deleterious effects of increased moisture and humidity lies in a study of electrical reactions of cells under these conditions. No observations on this point have come to the attention of the author, but the possibilities therein are suggested by the observation of Rosa and Babcock (46), that the resistance of metallic substances varies with humidity.

Still other possibilities that must await future investigations are the hydrogen ion concentration of the blood and other body fluids, the effect on the production and activity of internal secretions and the concentration of alveolar carbon dioxide under conditions of increased temperature and humidity.

The effect of air motion would, of course, tend to a more ready elimination of heat from the body by breaking up the envelope of stagnant air in immediate contact with the body, which would naturally have a higher content of moisture and a higher temperature than the air farther removed. But it is possible that this is not the only factor of importance in connection with air motion as suggested by Sewall (47), who states that the temperature nerves of the skin may be specific organs for the regulation of body metabolism, though on purely theoretical grounds. However, this point also must await further investigation.

V. Summary and Conclusions.

A survey of literature on the subject shows that investigations of recent years have proved that conditions of ventilation depend on control of moisture, temperature and motion of surrounding air, and that when moisture and temperature rise even moderately, and the air is allowed to remain stagnant, there is a decrease in physiologic efficiency and that this effect is dependent on inter-

ference with elimination of heat from the body. If this interference is sufficient the body temperature may rise.

The rise in body temperature acts, in a variety of ways, to the detriment of the body, as shown by disturbances of metabolism, decreased working power, and early onset of fatigue. Neither the diminution of oxygen, the increase of carbon dioxide, nor the generation of odors are of themselves factors in these effects, with the possible exception that decreased oxygen may affect the appetite.

On account of the similarity of observed effects of fatigue to those of the now recognized poor conditions of ventilation, it is apparent that there is a close relationship between the two conditions and it may be that the effects are the same though the mechanism is not clearly outlined.

It is apparent that the processes underlying the action of increased temperature have not yet been sufficiently determined but it is possible that the temperature nerves of the skin, the hydrogen ion concentration, the osmotic properties of the cells, and electrical reactions of the body tissues may be of importance.

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REDUCTION OF INFANT MORTALITY BY ECONOMIC ADJUSTMENT AND BY HEALTH EDUCATION.

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Read before the National Conference of Social Work, Atlantic City, N. J., June 5, 1919.

This is an argument for maternal nursing to reduce infant mortality. Dr. Levy does not place much responsibility on poverty as a cause of loss of infants, but emphasizes the effect of women in industries. He argues for education of the midwife because she is the family adviser of many foreign-born groups. He argues from results in Newark.

INFANT mortality is the resultant of various anti-social forces, most of which can be grouped under ignorance and economic and social conditions that interfere with maternal nursing. Syphilis, which is the cause of about 25 per cent of the stillbirths, and continues its destructive influences into the first years of life, maiming where it does not kill, can properly, for our purpose, be grouped under ignorance, as only through a better understanding, a greater mental and moral development will it be eliminated. Certain diseases might appear to some to be entirely outside of this classification, but in most instances the names of the diseases placed on the death certificates are far from giving the true causes of deaths in infancy. Diseases, like congenital debility, immaturity, prematurity, accidents at birth and convulsions—which are given as the cause of death in about 75 per cent of the instances in the first month of life—are but the obvious results of syphilis, alcoholism, overwork, under-nourishment of mothers, neglect during pregnancy, poor obstetrics or insufficient and improper care after birth. Likewise marasmus, malnutrition, summer diarrhœa, gastro-enteritis, bronchitis, pneumonia, measles and whooping-cough, which appear on the death certificates to explain the large number of deaths in the first year of life, represent, in most instances, merely the terminal condition, the condition with which the child died, not that from which it died. The true cause goes back to the prenatal conditions, like over-work, excessive fatigue, syphilis and the like, or to the obstetrical service, or lack of service given at the time of birth, or to improper care and advice given in the early weeks and months of life which resulted in unnecessary weaning, frequent gastro-intestinal disturbances and, finally, malnutrition. On such soil infection finds a fertile field and the child then is said to have died from bronchitis, pneumonia, measles or whooping-cough, when the real preventable cause is overlooked or forgotten.

Among the social and economic conditions affecting infant mortality I would not give a very important place to poverty; indeed, I cannot believe that low income bears any very constant or causal relation to high infant mortality. It is worth noting that, though in previous reports of the Federal Children's Bureau, income seemed to bear a very direct relationship to infant mortality, in the later study of Brockton, the investigator, seemed very much at a loss to explain the low mortality in the group with the lowest income, averaging about

$650 a year, because low income was supposed to be very directly associated with high mortality.

Attention was directed a number of years ago, by Sir Arthur Newsholme, to the fact that poverty could not be held as one of the important causes of infant mortality, as he was then impressed by the much lower infant mortality rates observed among large Italian families, even though they were living in the same houses with smaller English families with larger incomes and higher social standards.

I wish to hasten to add that I am not opposed to a high income for myself or any one else and that I sympathize with the efforts to increase wage standards, but my studies in infant mortality have led me to believe that other factors are more essential and bear a more direct relationship and that the handicap of meager income, no matter how much it may interfere with the development of the family as a whole, need not and does not affect the infant if certain conditions essential to its well-being are obtained, the most important one of which is maternal nursing and "mothering," and, on the other hand, that conditions which interfere with maternal nursing are but slightly compensated for by higher incomes.

While facts to substantiate this view can be obtained from various sources, I wish to present an intimate study of two wards in the city of Newark which seem to me to present convincing evidence that at least our babies do not depend for their happiness on money.

Ward 1 and Ward 8 are adjoining wards. Ward 1 has a population of approximately 27,000 with an area which would give about 162 persons per acre, and Ward 8 has a population of approximately 24,000 with an area which would give about 19 persons per acre. Ward 1 is a thickly populated, tenement house district where mothers have large families and irregular small family incomes. Ward 8 is our finest residential section where the mothers have small families, large incomes, and are busy directing the social and intellectual activities of the community.

You will receive, perhaps, a clearer idea of the contrast of these two wards in reference to income if I tell you that in Ward 1 28 per cent of the families live in houses containing twelve or more families, 42 per cent live in apartments with two rooms; that among 31 per cent of the families there are 2 persons per room, among 19 per cent of the families 3 persons per room, among 4 per cent 4 persons per room, and 1 per cent of the families have as many as 5 persons per room; the average family income in 1915 was approximately $421 per family.

From a financial standpoint Ward 8 is the very opposite in every particular and if infant mortality bears a direct relationship to income, Ward 8 should have about one-tenth the infant mortality rate of Ward 1.

In Ward 8 the houses are detached; most of the families own their private homes, and instead of 3 or 4 or 5 persons per room we are very apt to find 3 or 4 or 5 rooms per person. Indeed, in parts of the ward restrictions placed upon the deeds of sale permit only the erection of private homes costing not less than $30,000.

Now, where do we find the lowest infant mortality rate?

The figures I am presenting are taken from a three-year period (1915, 1916 and 1917) so as to eliminate any error that might result from the special incidence of epidemics or from the use of small figures.

During this three-year period there were born in Ward 1 3,517 babies and there were 294 deaths under one year, giving an infant mortality rate of 83.5;

in Ward 8 1,805 babies were born and there were 158 deaths under one year giving an infant mortality rate of 87.5.

It does seem, after all, and we may glory in the fact, that the health and happiness of our babies cannot be bought with dollars, but only with true "mothering"—and of this our poor, and specially our foreign-born poor, often have a greater reserve than our rich and native-born mothers. It is worth while to remember this in our zeal for Americanization.

I should add there was one factor present in Ward 1 that contributed somewhat to the result, but if income were such a determining factor it should easily have been offset by the ability of the wealthy to buy what they want. In Ward 1 the Department of Health has carried on an intensive infant hygiene campaign for the past five years which has consisted primarily of teaching mothers the value and technique of maternal nursing and of insisting that maternal nursing should be made possible for each mother and baby.

This often required economic adjustment in families where the husband's income was inadequate, where the wife thought she should work in a factory, where the husband deserted or was sick or unemployed. We held the view that the nursing of an infant under six months of age was an inalienable right for both mother and infant, and that society, as represented by its social agencies, must make it possible for every baby's mother and for every mother's baby.

I am glad to say that the agencies of Newark have accepted this view and, as far as lies in their power, do not permit a baby under six months of age to be deprived of its mother's care and feeding for financial reasons.

While income does not bear a direct relationship to infant mortality, I am willing to admit that one of the most constant factors associated with high infant mortality—the employment of women in industry—may be the result of low income, but it is very important in the infant mortality problem clearly to distinguish between coincidence and direct relationship.

I shall illustrate this association first by referring to the infant mortality rates among the colored.

The infant mortality rate among the colored is two or three times as high as that of the whites in all parts of the United States. Indeed, no city with a colored population of more than 10 per cent of the total shows an infant mortality rate under 100. Now, when we come to analyze the percentage of colored women in gainful industry, particularly, the percentage of women in the age group 25–34, and more particularly of those that are married, we find that there is a sharp drop among the white from the previous age group of 19–24, while there is no reduction at all among the colored. Indeed, an examination of the census reports shows that the percentage of colored women in employment is practically very little affected by age or marital condition.

The relationship of industry to infant mortality is clearly showed in another way. When we come to study the United States by geographical regions we find that the highest infant mortality rates are in the southern and eastern sections of the United States, the lowest in the northern and western. In these two groups we find the same difference as to percentage of women in industry and particularly married women 25–34, as we do among the colored in the south; that is in the New England section a very high percentage of women 25–34 are in industry, while in the West a very small percentage of women 25–34 are in indus-

try. Now it will readily be understood that this is not so much a difference in income as a difference in character of industry.

In New England, and also in the Atlantic Division, the industries are of that kind that can and do employ women, such as the textiles, silk, worsted, gloves, talking machines, food canning and needle trades, in the South tobacco and cotton raising, while in the West we have the heavy industries where women cannot be employed, such as foundries, lumber, mining, furniture making, locomotives. When we go further to analyze each geographical division by states we again find the high infant mortality rates associated with the same fact.

It seems to me that the value of studying infant mortality by such large groupings is that we eliminate at once all minor variations, such as difference in milk supply, water supply, condition of streets, sanitation, etc., because we know that the good conditions are not all associated with one region and entirely absent in another region.

The important relationship of women in industry is even more strongly brought out when we study the cities, large and small, and even rural communities, with high infant mortality rates. Large cities will often have a low infant mortality rate and small cities, like Gloversville in New York or Millville in New Jersey, will have a high infant mortality rate, because in the small city there will be found an industry, like the one in Gloversville as can be gathered from the very name itself, where women can and are extensively employed. On the other hand, towns and cities in Pennsylvania may be without sewage disposal or health supervision, with unsanitary streets and bad housing, and still have a low infant mortality rate. A western mining town will show an unusually low infant mortality rate and highly socialized eastern city will show a high infant mortality rate.

Indeed, the relationship of women in industry to infant mortality is so constant that I have found it safe to estimate the infant mortality rate of a city by the character of its industry and it is safe to anticipate a high infant mortality rate when we know that a community contains an industry which offers employment to unskilled female labor. With this view as one of the important causes of infant mortality, we are in a position also to understand sudden increase in the infant mortality rate in certain cities.

It will be found, for instance, that little communities on the eastern border of Pennsylvania have had an increase in infant mortality rates during the past five or ten years. A partial explanation will be found in the fact that, during this period, some of our silk industries of Passaic and Paterson, on account of labor difficulties, have moved into eastern Pennsylvania and brought with them greater prosperity for the towns of eastern Pennsylvania and a greater destruction of infants.

The one thread running through all the mass of contradictory statistics on infant mortality will be found to be conditions, like industry, that interfere with maternal nursing and mothering.

In this paper I wish to ignore the effect of industry upon the woman herself before the birth of the baby and its relation to miscarriages, stillbirths and deaths in the first days and weeks, and to emphasize only that it makes for a high infant mortality because it interferes with mothering and maternal nursing.

It is only fair to point out that other conditions and forces in a community might have the same effect, such as social agencies which try to solve family problems by offering employment to nursing mothers, day nurseries which tender-

heartedly offer to take care of young infants so that the mother may become self supporting, hospitals that accept young infants but refuse to take in their nursing mothers or are willing to treat and operate nursing mothers but refuse to accept their nursing infants.

After we have accepted this view of the relation of income and various social and industrial and economic conditions to infant mortality it becomes obvious that only through that kind of public health education that develops and maintains maternal nursing effectively will infant mortality be reduced.

To sum up my views, therefore, on the first phase of the subject assigned to me, I would say that a considerable reduction can be effected in infant mortality by that form of economic adjustment which will guarantee to every baby its birthright of maternal nursing and "mothering," and to every mother her maternal right and privilege to mother and nurse her own infant.

In discussing what can be accomplished by public health education in the reduction of infant mortality, I am reminded of a definition of scientific training as given, I believe, by Matthew Arnold who said, "scientific training consists of learning what to look for and where to look for it," and so I believe that public health education for the reduction of infant mortality, to be effective, must be directed to those things that really bear a very direct and pertinent relationship to infant mortality and must be so given that it can really effect these factors.

In speaking to workers in large cities I would give first place to the education of the midwife because, in large cities, the midwife attends approximately 50 per cent of all the births and as much as 80 per cent of the births in certain foreign-born groups and among these groups the midwife is not only accoucheur but also family doctor and friendly advisor. What can be accomplished by supervision may be gathered from a summary of the results obtained in Newark during the past three years.

In 1917 the infant mortality rate, the death rate of babies who died under one month of age and the puerperal death rate were lower among the babies and mothers cared for by midwives than those cared for by doctors or in hospitals. The effect on the city as a whole can be gathered from these figures:

In 1910 puerperal death rate was 6.4 or 1 in 150.

In 1917 puerperal death rate was 2.4 or 1 in 450.

I had occasion, two years ago, to present to the American Association of Obstetricians and Gynecologists a complete study of the results obtained in Newark in midwifery practice in which we showed in detail that, with proper training, supervision and regulation, the results for the babies and mothers were as good as those obtained in general medical practice or hospital service. As a result of this public health education among midwives who reach each year over 5,000 mothers we feel we have added 100 teachers of infant hygiene to our staff, and that the policy of ignoring the midwife or denying her existence helps no one—except the undertaker.

The education of the mother in the essentials of infant hygiene at a time when this knowledge can insure proper prenatal care, proper supervision for labor and above all else prevent unnecessary weaning or improper technique in maternal nursing, prevent cracked nipples and breast abscesses, is the most effective manner of reducing infant mortality and of increasing the health and vigor of the children who live.

This instruction should be given during the prenatal period if possible, but under

no circumstances, I insist, later than two weeks after the birth of the baby, for it is to be remembered that if we wait until the mother brings the baby to a clinic a consultation station or milk station, the baby is usually three months of age and more than one half of the babies who ordinarily die in the first year of life are already dead. It is to be remembered that even at the end of the first month one-third have passed away.

The purpose of all our instruction must be to maintain maternal nursing. If this is accomplished the death rate is kept down and health and normal development maintained. If the number of breast-fed babies is reduced, no matter for what reason, the health index falls and the death rate goes up even though experts on infant feeding or milk stations are able to salvage some of the wrecks.

In certain individual cases money can buy service, better physical environment, perhaps life, but generally speaking the mother is the baby's whole environment and if we will in our social and industrial development guarantee to each baby its mother and to each mother her baby we may feel sure that we are treading the right road towards normal family life, where each mother will be permitted to develop spiritually and physically as nature intended she should, with intimate contact with her baby; and where each baby will be kept totally and physically dependent upon its own mother as evolution has definitely shown it should, and each baby will be given its own natural food, its natural caretaker and its normal environment.

Public health education and economic adjustment that makes possible these normal minimum standards will reduce infant mortality.



SCHOOLS AND SCHOOL CHILDREN.

Oscar W. Hallin,
Braham, Minn.

Here is the opinion of a teacher. He attacks the problems of school hygiene from the practical viewpoint of a layman who is a daily worker in the schoolroom itself. He expresses some very radical opinions, but he gets at them honestly and through his own experience. : :

THE effect of school attendance on the health and growth of children has been investigated by several competent observers in different countries. From these investigations it has been determined with certainty that elementary schools have a harmful influence on the health of children.

One of the investigations on this subject was made by Dr. Wretlind, physician in the schools of Gothenburg, Sweden. During a period of twenty years he kept an accurate weight record of all the pupils in three girls' schools. He weighed the pupils twice each year, at the beginning and at the close of the school vacation. The weight taken at the beginning of the vacation showed the gain during the 9 months of school while the weights of the pupils at the close of the vacation showed how much the children had increased in weight during the three months of rest. The following table is a summary of his observations, showing the average increase in the weight of the pupils:

Age of Pupil	Gain in Weight During		Monthly Gain During	
	9 mo. School	3 mo. Vacation	School-time	Vacation
8	3.86 lbs.	1.60 lbs.	.43 lbs.	.53 lbs.
9	4.07 "	2.01 "	.45 "	.67 "
10	4.50 "	2.52 "	.50 "	.84 "
11	5.81 "	2.73 "	.64 "	.91 "
12	7.29 "	3.57 "	.81 "	1.19 "
13	5.95 "	4.93 "	.65 "	1.64 "
14	7.13 "	4.67 "	.79 "	1.56 "
15	4.03 "	4.61 "	.45 "	1.54 "
16	3.58 "	3.35 "	.40 "	1.12 "

This table shows that the monthly gain in the weight of school children is much greater during vacation than during school months. It should be remembered in this connection that the vacation is during the summer months which constitute the most unfavorable time of the year for gaining weight.

Dr. Schmidt-Mounard of Leipzig also spent several years in making observations on the growth of children in and out of school. This investigation has given further evidence on the subject. He states positively that during the first year at school the growth of children, both in height and weight, is less than during any preceding year. Thus during the first year at school the average child gains only $2\frac{1}{2}$ pounds in weight compared with 4 pounds in previous years. The increase in height is only 5 cm. compared with 7 cm. the year before entering school. This record seems to refer to children 6 years old which is the usual age for children to enter school in Germany. Dr. Schmidt-Mounard also came to the definite conclusion through his observations that children who do not go to school before they are 7 years old become stronger and are in all respects better developed than those who commence school a year earlier.

What is the matter with the elementary schools?

Doubtless there are many factors in school that are detrimental to the health of children. Among these perhaps the most serious are:

1. Deficient fresh air and sunlight.
2. Deficient physical exercise.
3. Mental overstrain or fatigue.

It is essential for the proper health and growth of children that they constantly breath pure, fresh air. In spite of improvements the ventilation of schoolhouses is far from sufficient. The air in the schoolroom is not as pure and fresh as the outside air. Open air schools seem to be the only solution of this problem. Every elementary school, whether for healthy or sickly pupils, should be an open air school.

Children need much physical exercise. In the elementary schools the pupils are obliged to spend more than five hours daily in studying and reciting their lessons. Sometimes this period is still further extended by home study. This means five hours or more of physical inactivity for each school day. It is absolutely unnatural for children to be confined thus. This lack of physical exercise can have only one result, deficient physical and mental growth.

Poets used to delight in extolling the care-free happiness of childhood. But times are changing. The prosaic business age in which we live has as little respect for the joys of childhood as it has for the beauty and sublimity of forests. Before children have fairly ventured beyond the nursery threshold they are ushered into the mad rush and worry of "strenuous life." As a result we find them facing the responsibilities of adults before they can share the privileges of grown-up people. They are stunted and overworked physically and mentally and thereby hastened to a premature old age and death.

The elementary schools have caught the infection of the "strenuous life." Colleges are trying to turn out graduates 20 years old. That means that the high

schools must speed up to furnish 17 year old recruits for the colleges. Then the elementary schools must rush their pupils so they will be ready to enter high school at 13. All the while colleges, high schools, and elementary schools are each trying "to keep abreast of the times" by steadily increasing the contents of their courses of study. Where is this rush going to end?

Children are overworked in the elementary schools. Tests made with pupils 11 or 12 years old show that after 35 minutes of continuous application at any one task they exhibit marked evidence of overstrain. This is indicated by greater carelessness in the writing, more errors in the work, uncontrolled movements of the body, and the inability to work rapidly. With younger children the period is considerably shorter. We find that different investigators have reached the conclusion that children should never be held down to continuous mental effort longer than half an hour and with young children much less,—10, 15, or 20 minutes, depending on age. After each such period of mental work the children should be given an ample period for mental rest and recuperation. In our elementary schools no attention is paid to such matters. Children are required to work four periods daily, each period continuing more than an hour. It is beyond doubt that a prominent investigator on this subject, Kræpelin, was right when he said, "The fact is undeniable that schools exact more from pupils than their intellectual ability admits."

Fatigue is a physical poison. From investigations it has been found that this chemical poison seriously affects both the physical and mental health. There is a general agreement that dyspepsia may be caused by excessive brain work. Fatigue resulting from overstrain at school occasions the destruction and disintegration of bodily tissue. The physical vigor is thereby diminished and the resistance to disease lowered. It may also cause serious and permanent mental defects.

Very few children are physically perfect at birth. This means that the vast majority of children are handicapped by more or less serious mental defects. These defects may be permanent abnormalities or simply that some faculty is undeveloped. Such children may outgrow or at least improve many of these defects if they are brought up under proper conditions. On the other hand, if they are compelled to live under unfavorable circumstances, their condition is aggravated. Mental fatigue at schools is one of these unfavorable circumstances. It is easily understood that when a chain is under strain the weakest link will be first to break. It is just as plain that the weaker faculties of a child will fail first and suffer most when under mental overstrain. This will aggravate the defect. In this way many physical and mental defects that might have been overcome under proper conditions develop into permanent and serious defects.

One example will be sufficient to illustrate this fact. It has been observed that the Americans are becoming a nation with weak eyes. It is well known that the eyes of many children are not naturally very strong. When they attend school they must employ their eyesight a great deal. It is inevitable that mental fatigue will increase the eye weakness of these children before it affects their stronger and less employed faculties. Mental fatigue is one of the most prominent causes of poor eyesight today.

Poor eyesight is only one of the evil results of overstrain at school. Nervous defects of all kinds are increased by mental fatigue. For this reason nervous children suffer most from this cause. It is important to protect all children from mental overstrain. The nervous children,

however, being more subject to it than others should receive especial care and protection.

Every one who realizes the unfavorable influence of schools on the health of children will agree that prompt measures should be taken to remove these detrimental influences. What must be done to accomplish this?

1. There is needed more fresh air in the schools. This would require more open air schoolhouses.

2. There should be a change in the age for elementary school attendance. It is a serious matter to send a child less than 7 years old to an elementary school. The compulsory attendance laws should be radically modified. The physical condition of every child should be examined before he enters school. Children found to be approximately healthy and normal should not be permitted to enter school before their seventh birthday. Nervous, feeble, and puny or unhealthy children should not be permitted to begin school before 8 to 10 years of age, depending on their condition. There should also be special schools or classes for children of this kind.

3. There is needed radical change in the school work. The school work periods should never be much more than half an hour each in duration for the advanced pupils. Younger children should have even shorter periods. Every study period should be followed by a recess or rest period. With the youngest pupils these periods should be at least twice as long as the preceding study period. The recesses should gradually be shortened as the children grow older. In the advanced grades the study periods and recesses should be about equal in length. There should also be an extra half hour recess at noon for lunch.

The recesses should largely be devoted to physical recreation and athletics. There should, however, be some periods for both physical and mental rest. The youngest pupils should have more than one such rest period daily.

4. The two foregoing changes would in turn necessitate two other important changes in elementary education. Instead of completing the elementary course of study at the age of 12 or 13, the children would need to continue until they were 17 years old. The course of study would also have to eliminate all whims and fads of modern pedagogy. The curriculum should include only the essentials of elementary education without "laces or fringes." These perhaps have their value but if the health of the children shall be properly cared for there will be no time for these things in elementary schools.

5. There should be much physical recreation during the recesses. Some of this might be disciplined athletics. However, this form of exercise requires much nervous concentration and would, therefore, not give the nerve rest which the children need most. It would be much better to have most of the physical exercise in an informal way such as games and informal sports. These should be graded so as to be especially adapted for children of different ages. This "play education" should also be used as a means to teach the children honesty, unselfishness and morals generally. For this reason all recreation of doubtful moral educational value should find no place on a school playground or in the playroom. All games and recreation should be valuable factors in physical education, and of unquestioned value as agencies in moral culture. It is needless to say that the children should be supervised during the recesses although the supervision should be as informal as possible.

REPORT OF THE SECTION ON PREVENTIVE MEDICINE AT THE MEDICAL CONFERENCE AT CANNES.

The official reports of the Medical Conference held at Cannes, France, April 1 to 11, 1919, are reaching this country. Through the courtesy of Hermann M. Biggs, A. B., M. D., LL. D., Commissioner of Health, New York State, the JOURNAL has been permitted to abstract the Report of the Section of Preventive Medicine. This report was adopted by the section and presented to the Conference. It is here given with some abbreviations the abstracts being included within brackets.

As preventive medicine includes practically the whole field of public health, and as certain very important subjects have been considered in special sections, and reports upon them have been submitted to the Conference, in the limited time at our disposal we believe it is desirable to consider briefly a few of the broader questions concerning public health legislation, administration, etc., and several special topics, the immediate treatment of which seems important.

It is appreciated that in the report of this section, there will be some duplication of recommendations already made by other sections of the conference. This is intentional; and such recommendations are made here for the purpose of emphasizing the importance of work of this character.

PUBLIC HEALTH LEGISLATION.

An efficient Public Health Administration presupposes the existence of sound public health legislation. This will be found to be entirely lacking in many of the countries where the most unfavorable health conditions exist, and where more adequate measures for the improvement of the public health are most needed. The creation of a public sentiment demanding good public health laws must usually precede their adoption.

We believe that the proposed Central Bureau should assemble and digest the public health laws and the sanitary codes of the important countries and cities of Europe and North America, and distribute the digests widely among public health authorities. When new legislation is thought to be needed in any country, the Central Bureau should stimulate the national Red Cross society to initiate activities looking to its enactment. The Central Bureau should also aid the respective national Red Cross societies in drafting such legislation as seems best adapted to the existing governmental functions in different countries and to the customs and habits of the people. This work is extremely important and will require a broad knowledge of public health, sound judgment and great tact. In general, the public health law in each country should create the necessary organization and machinery for effective health administration; but in other respects it should be very broad in its provisions and not specific, and should provide for the creation of a small expert body (without administrative or appointive functions) to which is delegated the power to enact regulations relating to any and all matters affecting life and health. These regulations should have all the force and effect of law, and they can be readily amended or added to as may be required by new conditions, or by the extension of health activities, by the appearance of new diseases, or by additions to existing knowledge of known diseases. We regard this work in stimulating the enactment of wise public health laws as one of the important activities of the Central Bureau.

PUBLIC HEALTH ADMINISTRATION.

There are several phases of public health administration of such great importance that they should receive special mention and consideration. In this connection we wish strongly to emphasize that while public health administration is wholly a governmental function, yet voluntary organizations of various kinds are, under many conditions, absolutely essential in order to create the public opinion necessary to cause the enactment of the required legislation or to bring about official action.

(a) **Registration of Vital Statistics and Notification of Certain Infectious Diseases.**—The enumeration of the population of a country at regular periods, the accurate registration of births, stillbirths, deaths and marriages, and the notification of certain infectious diseases are of fundamental importance, and constitute an absolutely essential preliminary to the formulation of an effective campaign for the general betterment of the public health in any country.

Special activities directed toward the control of various endemic or epidemic diseases may be attended with considerable success when such data are not available, but the general and permanent betterment of health conditions in a country or community must be presented or accompanied by the accurate registration of vital statistics. We believe that the Central Bureau should initiate activities looking to improvement in this respect in many countries.

In this connection an effort should be made to have the vital statistics in all countries standardized and tabulated in such a way that comparable

data on important subjects are available. We believe that these are now notably lacking. A few standard tables might be prepared and submitted for modification and adoption by the authorities in all of those countries where laws requiring registration and notification are now in effect.

(b) **Public Health Laboratories.**—At the present time no serious attempt should be made to undertake a program for the general improvement of the health conditions in any country or any locality without first providing for an efficient laboratory service, with such complete facilities for its use as to make it readily available without charge to all practitioners of medicine. In addition, every effort should be made to encourage and stimulate the use of this service and its proper valuation. This is the most important and perhaps the only governmental health function from which the physician receives from the authorities a really valuable service. When this service is properly rendered, it is highly appreciated by the medical profession, and it serves to foster coöperation and good feeling between the health authorities and the profession. The laboratory service should include the free distribution of vaccines and curative sera at least for use among the necessitous poor, provided that the administration is under scientific control. We believe that there is no other agency more potent in improving the standards of medical practice in a country than the service of a public health laboratory which has been administered so as to bring about the wide use by the medical profession of the facilities which it offers.

(c) **Public Health Nursing or Health Visiting.**—A very large part of all effective work in public health is educational in character; and a most efficient instrument for conveying knowledge upon various public health matters to the people, is the trained nurse or health visitor. The rapid advance in the effectiveness of public health work, which has taken place in many countries in the last twenty years is largely due to the introduction by the public health authorities of public health nurses or health visitors. We believe that the Central Bureau can render no more important service than that of stimulating and aiding in the training, and, if necessary, providing instruction for the training of such nurses or visitors in those countries where they do not now exist or are present in insufficient numbers. We believe that only with their assistance can an important health campaign be successfully carried on.

(d) **Public Health Education.**—We are convinced of the prime importance of widely disseminating among the people a knowledge of the simple laws of healthful living and a conviction as to the need of applying them. This is the most valuable means whereby we can promote their physical well being; and, with a "health conscience" formed, most public health problems become simplified and all public health administration is made more easy.

It may be said that the measure of the public health of any community is in no small degree the measure of self-help in health matters. Official and voluntary health agencies can effect much in the direction of improving the environment of the individual and preventing communicable disease; relatively they can effect little in the direction of securing hygienic observances in the intimate circumstances of living, and in the wider field of non-communicable but preventable disease. Ignorance and carelessness are here responsible for much sickness and premature death.

It is largely because child welfare work is essentially educational that so much success has been obtained in it; and we consider that, profiting from this experience, general public education should be made a prominent part of public health activities in every field of work.

Hygienic precepts and practice at school, and the training of the older girls in the essentials of infant care and home making are of fundamental importance as a means of contributing greatly to the health and happiness of a community. For those who have left school an active educational propaganda should be maintained. For popular propaganda purposes we would indicate the following as agencies of proved value:

(1) The public press,
(2) Cinema films,
(3) Posters,
(4) Exhibits,
(5) Popular lectures,
(6) Educational campaigns on special health topics in which all these agencies are employed.

We consider that for the most effective propaganda, assistance is generally necessary from experts in publicity matters.

[Special problems were next considered, housing, Town Planning, etc. In the former group suggestions are made of general nature, with reference to the control of certain epidemic diseases when normal conditions again exist in the world. At the moment, however, the dangers from typhus are such that the need for immediate action is pressing. For that reason a more definite program was outlined for its control which is given below in full, see page 687.]

[The suggestions made by the Section include the need of opinions from architects or engineers specially informed on the problems of town planning, and the possibility of giving advice and fur-

nishing proper plans by a department of the national Red Cross.]

The Report continues:

We would recommend the following as appropriate activities for the Central Bureau to undertake.

1. To stimulate the formation of national Red Cross societies where they do not exist and to strengthen and increase the membership of those already existing.

2. To coöperate with national Red Cross societies and other voluntary organizations and with government agencies in health work, thus avoiding duplication and friction.

3. To advise national Red Cross societies to add to their personnel when necessary, experts or persons informed on the subject of preventive medicine, so that they can intelligently carry out the new program of health work.

4. To submit health programs to national Red Cross societies relating to tuberculosis, malaria, child welfare, etc., along quite general lines. The programs suitable for each country will need to be modified to meet the local and national customs and habits of the people, climatic and other conditions. When necessary, to assist national Red Cross societies in putting the programs into effect.

5. To stimulate the logical development of the work of relief of Red Cross societies towards a comprehensive plan for more permanent relief through the betterment of general conditions and the improved health of the people.

6. To concentrate activities so far as possible on prevention rather than on relief—as the results of preventive work are not only permanent instead of temporary as is the case with relief work, but the cost is far less than the cost of relief and the returns out of all proportion to the cost.

7. When funds are available and conditions justify such action, to stimulate programs for the control of some of the communicable diseases which are subject to control and are widely prevalent in some countries or localities by aiding the authorities in making demonstrations in such control.

8. To aid in the control of certain epidemic diseases, such as typhus fever, cholera, yellow fever, etc., which have an international significance because they constitute an international menace.

[The report further outlines initial work to be undertaken. Two of the most urgent problems being: The decrease in birth rate and the protection of young children during their child years.]

[A program is suggested for the prevention and control of typhus fever and a plan of procedure is sketched with reference to control of any epidemic disease widely prevalent in any country or locality. The text of the report is the following:]

1. Make digest of literature with reference to the epidemiology.

2. Make survey of area with reference to the extent and degree of prevalence and its significance as a cause of sickness and economic loss.

3. Obtain sanction and coöperation of voluntary and governmental agencies in efforts for control; promoting, when lacking, full notification of cause of sickness.

4. Adopt measures shown to be effective under conditions as nearly similar as possible as relating to climate, habits, food, and economic conditions of the people.

5. Make series of demonstrations in limited areas in different localities, keeping careful records of local conditions, measures of control employed, and details of operation.

6. Tabulate results obtained and cost as related to prevalence and economic loss previously resulting from disease.

7. Prepare full reports of demonstration with all data and distribute widely in areas similarly affected.

8. Keep constantly advised as to similar work being carried on by others in other localities and collate all information so that experience of all may be everywhere available.

9. Establish follow-up service to determine ultimate results and to stimulate national and local Red Cross organizations and health organizations and authorities to continue and extend the work.

10. If results justify the expenditure, make additional administrations in other localities and conduct similar ones under different conditions, as opportunities offer and means are available.

[Housing and town planning were also considered, with suggestions of the principles which should be observed in this work.]

[The chairman of the section was Dr. Biggs with twenty-one other members representing the five countries, Great Britain, France, Italy, Japan, and the United States.]

EDITORIAL SECTION

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FOOD POISONING.

Food poisoning is a condition about which much is written, but concerning the etiology of which there seems to be very little definite information. As used in America, it has become practically synonymous with so-called "ptomain poisoning," a term which has become popularized to such an extent that it now seems to be the cloak which covers all the etiologic factors of sickness due to food, even where specific pathogenic organisms are incriminated. The word "ptomain" was first used in 1873 by Selmi to designate certain products of putrefaction which gave the reaction thought, at that time, to be characteristic of the animal alkaloids. Since then many other definitions have been suggested, but as yet an accurate statement seems impossible. "Ptomains" were last described by Vaughan and Novy in "Cellular Toxins," Philadelphia, 1902, who defined them as intermediate cleavage products of protein decomposition. Many of the so-called ptomains which have been isolated have been later shown to be impure or not poisonous at all. Chemists avoid the use of the term because it lacks precision and as Jordan in his "Food Poisoning" says, "is a convenient refuge from etiologic uncertainty."

In Europe, food poisoning is much more prevalent than in this country and yet the term "ptomain" is seldom used by the European writers, and when it is, is carefully guarded. The reason for the greater prevalence of food poisoning among Europeans is probably found in the fact that they do not use our careful methods for the preservation of foods, both in commerce and in the household. Furthermore, it is the custom in Europe to consume much more sausage and similarly prepared foods which offer an increased opportunity for infection due to handling and the absence of adequate methods of preservation.

For these reasons the report of the careful bacteriological examination of commercial canned goods made by Dr. John Weinzirl, working in the Department of Preventive Medicine and Hygiene of the Harvard Medical School, which was published in the January number of the *Journal of Medical Research*, is of particular interest. Weinzirl bases his conclusions upon a bacteriological examination of 1,018 cans of food. In not one of these cans, even in the obviously spoiled, did he find pathogenic organisms. A

certain percentage of the cans, purchased in the open markets, contained viable spores, all of which belonged to the harmless types of hardy bacteria quite commonly found in water and milk. In addition he shows that these spores are unable to develop in the absence of oxygen. This is equivalent to saying that commercial canned foods, even though they contain viable bacterial spores, are not the cause of poisoning when consumed, owing to the fact that the absence of oxygen has prevented active bacterial growth in the cans. Thus, he emphasizes again, after a long period during which it was more or less discredited, the importance to the preservation of foods, under the present methods of processing, of the maintenance of a vacuum in the can. The yeasts being facultative anaërobes, he finds, can readily multiply if the cans are underprocessed and are thus a cause of fermentation and swelling, but the vacuum serves as a potent factor in preventing the development of aërobic organisms. He reports also, in commercial canned foods, his failure to find organisms usually incriminated in the various types of food poisoning such as *B. botulinus* on the one hand or *B. paratyphosus* and *B. enteritidis* on the other. It would seem that large scale production with its standardized methods overcomes the difficulties of sterilization sometimes encountered in home canning and preserving. From Weinzirl's observations we are justified in concluding that canned goods as purchased in the markets today, are not a source of food poisoning.

ARCHITECTS AND EXPERTS NEEDED IN PUBLIC HEALTH.

On both sides of the ocean at the same time the same thought has actuated two foremost public spirited bodies. At Cannes, the Red Cross Conference recommended the employment of architects and engineers skilled in the specialities under consideration, as advisers to the Red Cross national organizations; in this country the National Education Association through its Committee on Standardization has issued a similar suggestion with reference to school house planning.

In the paper presented at the Milwaukee meeting of the N. E. A. the chairman of the committee called attention to the fact that, "In spite of the work of engineers and the medical profession, backed by the human interest of parents, progress in right sanitation [in schoolhouses] has been exceedingly slow throughout the country." There are in fact only five states in the Union in which legislation concerns itself with the number of water closets per hundred of pupils, and one state only of these, has space requirements. Even in the attempt to regulate this elementary feature of sanitation, there is no standardization; no real common sense. For example some of the states require one and one-half times as many fixtures as do other states. This is not an unusual feature, for the space requirements of class rooms even, are widely different in different states. Every question pertaining to schoolhouse construction has been left, one may judge, to the mercy of the state legislatures which have passed their school building laws in apparent ignorance that others have worked at the same problems, or of local school authorities who have followed the vagaries of their own notions.

Some of the outcomes of such a policy are best represented by a broad view of the effects of the laws on school building construction. The splendid and serviceable school buildings of Rochester, N. Y., which are admired by visitors and praised by those who use them, would be legally unfit for school use in some other states. Out of this chaos the N. E. A. is trying to lead the way to some formulation of fundamental principles that shall have a valid scientific basis. For this purpose it has established a strong committee now engaged in analyzing existing conditions. This analysis touches sanitation as well as construction.

One would imagine that the sanitation of schoolhouses would have rested by this time on some secure foundation, with all the attention that has been given to the subject. It is nevertheless true that standardization is absent everywhere. In ratio of toilet accommodations to pupils there is wide range; in illumination, numbers of rooms have been found in which the desks distant from the windows have far less than the accepted minimum of lighting. In heating and ventilation the survey shows that

there is wide variation in the provision for different structures. It is only fair to say, here, however, that some of this is due to varying systems—some would be harsh enough to term it, laxity—of inspection, for in states that have copied the laws from others, the effective heating and ventilation are widely different.

Even in most evident matters, the schoolhouse as it exists, does not conform to plain common sense. For example, more than one eighth of the 122 modern school buildings whose space distribution has been analyzed by the N. E. A. Committee, make no provision for a special room for women teachers. Despite the place of the school physician in modern school life, and in modern public health administration, only 18 of these schools assign a special room for his use. This is, of course, absurd in view of the important health movements that center about the schoolhouse.

In the large work of town planning or improvement, the Red Cross Conference is beginning at the right end and seeks to avoid difficulties by advising the employment of consulting architects and engineers with their special knowledge, while the Chairman of the N. E. A. Committee on Standardization of Schoolhouses seeks the avoidance in the future of the confusion now prevalent, by publicly advising communities to avail themselves of the good offices of architects who are specialists in schoolhouse planning. Both are steps in the right direction.

TWO NEW PUBLIC HEALTH MAGAZINES.

Within the past few months, two new periodicals have appeared which will be of interest to the public health profession.

The *Journal of Industrial Hygiene* will be devoted to the more technical phases of the field of industrial hygiene. It is published in Boston, Mass., under a subsidy by public spirited manufacturers of New England. The editor is David L. Edsall of the Harvard Medical School. He has gathered about him an unusually able editorial staff.

Modern Medicine hails from Chicago and is published by the same firm which issues the attractive *Modern Hospital.* This new comer takes for its field the application of medicine and allied science to industrial efficiency and to national health. Its managing editor is John A. Lapp, Ph. B., well known through his previous editorial connections with prominent periodicals. He is likewise assisted by an able corps of editors.

The American Journal of Public Health welcomes both these publications most heartily and prophesies for them a useful and successful future.

WHY THE WORK GOES SLOWLY.

A communication from Dr. A. J. Lanza, medical officer in charge of the office of Industrial Hygiene and Medicine, has been received to the effect, that the appropriation the present year for industrial hygiene work is only about one-fourth as much as it was last year, and this is the beginning and the end of an explanation why the work is not being carried along the lines suggested in the paper by Dr. C. B. Selby in the July Journal.

The A. P. H. A. is indebted to Mrs. C. S. Caverly for the gift of a set of the Journal, the library set of her late husband, Dr. Caverly, former president of the Vermont State Board of Health.

ASSOCIATION NEWS

HEALTH EMPLOYMENT BUREAU.

In order to help relieve the shortage of sanitarians, free help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Positions wanted and help wanted advertisements are also carried on XXIX of the Advertising Section.

Wanted: Social worker for the Grenfell Mission, Labrador. Some district nursing, some one with hospital training, or some one who is a graduate nurse. Canadian preferred. Address M. R. W., 263, care of this JOURNAL.

Wanted: Male laboratory technician, in hospital in Chicago. Experienced in Wassermann, dark field illumination and general hospital routine; $100 a month, room free, board and laundry. Address L. A., 286, care of this JOURNAL.

Wanted: Well-trained nurse for work in schools of Danville, Va., salary $90–$100 per mo., according to qualifications. Address G. W. R., 287, care of this JOURNAL.

Trained medical men with experience in public health work are invited to take the examination for District Health Officer or for Epidemiologist of the Massachusetts Department of Health. For details apply to Eugene R. Kelley, M. D., State Commissioner of Health, State House, Boston, Mass.

Wanted by the Y. M. C. A., a health lecturer for work in Russia. For particulars address R. M. Story, International Committee of Y. M. C. A., No. 347 Madison avenue, New York, N. Y.

INFLUENZA STATISTICS COMMITTEE.

This Committee is to consider the mathematical analysis of the data assembled.

During the latter part of September the Pathometry Subcommittee of the Vital Statistics Section Committee on Statistical Study of the Influenza Epidemic will meet at Columbia University, New York City. The subcommittee will take up matters of mathematically testing, graduating and of logically interpreting the data published by registration offices. Suggestions on these matters are invited, and these suggestions should be addressed to Mr. Arne Fisher, Recorder, Subcommittee on Pathometry, care of Statistician's Department, Prudential Insurance Company, Newark, N. J.

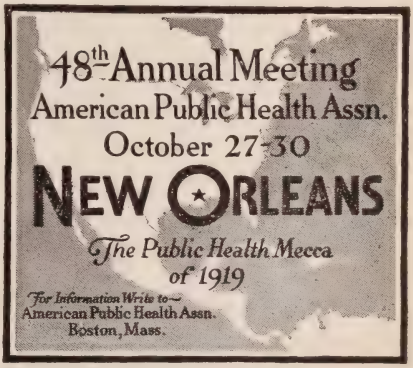
Professor Charles C. Grove, Department of Mathematics, Columbia University, is chairman of this subcommittee. Offers of coöperation in the work of the subcommittee have been received from Professor James W. Glover, University of Michigan; Professor Raymond Pearl, Johns Hopkins University; Dr. Wm. H. Davis, Chief Statistician for Vital Statistics, Bureau of the Census, and others.

MEMBERSHIPS.

The interest awakened in the Association in getting new names on the list of members is still active as is evidenced by the fact that the number added to the rolls between the sending of President Frankel's first letter and August 27 is 1108. The new names are from practically every section of the country, as will be seen by an inspection of the list, which now includes some from the Philippines and one from the far Northwest, in Saskatchewan.

THE NEW ORLEANS "STICKER."

So that members may let their friends know that the A. P. H. A. is a living organism and is moving vigorously in the direction of its New Orleans Convention, this attractive "sticker" has been prepared for the use of health officers, health officials and the general membership of the Association. It presents the extended territory from which the Association draws its members, and in the two-colored design, the blue of the ocean will define and set off



the continent, in which New Orleans is the bright, particular central star in the constellation. One can see how well it is placed for a convention city of this distribution of professional men. Indications are that the Crescent City will indeed be the "Public Health Mecca" in October, and a glance at the preliminary program in this issue of the JOURNAL,

pages 698–709, will be sufficient to explain the reason.

Members who are going to New Orleans, may well attract the attention of their friends to what "is doing" by affixing the "stickers" to their correspondence, while those whose business engagements will deter them from going, may well perform missionary service by bringing the meeting to the attention of their friends who may perhaps be able to attend.

The "sticker" will be furnished in any desired quantity on application to the Secretary, A. P. H. A., No. 169 Massachusetts avenue, Boston, Mass. Send in your orders early, whether for one or a thousand, so that you may begin their use without losing a moment.

CHILD HYGIENE ASSOCIATION MEETING

The members of the American Public Health Association are invited to attend the annual meeting of the American Child Hygiene Association formerly the American Association for Study and Prevention of Infant Mortality) at Asheville, N. C., November 11–13, 1919.

The meeting will be held concurrently with that of the Southern Medical Association, and members and others interested are especially urged to reach Asheville on Monday, November 10, so that they may take part in the meetings of the Pediatric Section of the Southern Medical Association.

For information about the meeting address the Executive Secretary of the Association, 1211 Cathedral street, Baltimore, Md.

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PROPOSED FOR ELECTION TO THE

A. P. H. A.

FROM JULY 21 TO AUGUST 21, 1919.

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Vice-Chairman,
Executive Committee.



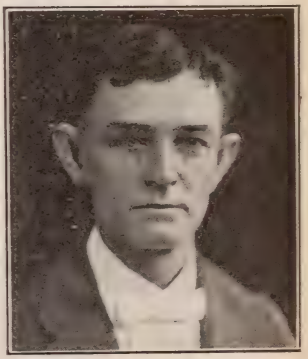
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Hotel Committee.



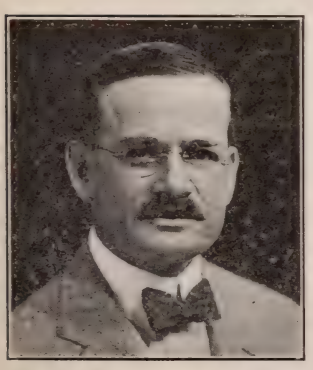
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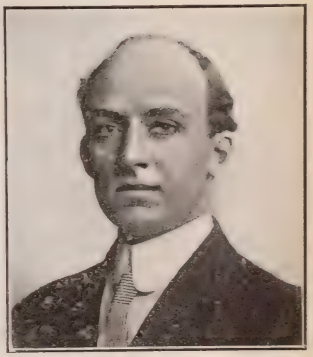
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FRANK R. GOMILA, M. D.,
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Chairman,
Exhibits Committee.

THESE WELL-KNOWN HEALTH ADMINISTRATORS ARE THE MEMBERS OF THE EXECUTIVE COMMITTEE WHICH SPELLS SUCCESS FOR THE NEW ORLEANS MEETING.

NEW ORLEANS HOTELS.

	Capacity in Rooms.		With Private Bath.	Without Bath.
GRUNEWALD, Association Headquarters,	600	single	$3.00 up	$1.50 up
University Place, near Canal St.,		double	4.00 up	2.00 up
ST. CHARLES,	800	single	2.50 up	2.00 up
St. Charles St. and Common,		double	4.00 up	3.00 up
HOTEL DE SOTO,	150	single	none	none
Poydras St. and Baronne,		double	6.00	4.00
PLANTERS,	30	single	2.50	1.50
Carondelet St. and Perdido,		double	4.00	2.00
LAFAYETTE,	40	single	2.50	1.50
Dauphine St. and Iberville,		double	3.00	2.50
MONTELEONE	150	single	3.00 up	2.00 up
Royal St. and Iberville,		double	4.00 up	3.00 up

All hotels are equipped with hall baths.

The chairman of the Committee on Hotels and Accommodation is J. J. Wymer, M. D., Acting Medical Supervisor of Public Schools, New Orleans, La., to whom inquiries may be addressed.

WHAT NEW ORLEANS IS OFFERING.

When in 1825 the Duke of Saxe-Weimar visited New Orleans he found a very attractive city. It was quite another world from that in which he had been traveling. "Plantations with handsome buildings followed in quick succession," he wrote, "noble live oaks, orange trees, mansions with columns, piazzas and covered galleries. . . . We saw from a distance the white spires of the cathedral and the masts in port. The road lay between well-built mansions; over the streets were hung reflecting lamps." The New Orleans of the twentieth century is no whit less attractive.



The JOURNAL may be pardoned if it turns aside from the technicalities of public health to note to its readers some of the impressions of this beautiful Southern city, chosen for the Forty-Seventh Annual Convention. It is a city with history and beauty. The former teems with rare romance, and a touch of European mediævalism found in no other place in America; with an individuality all its own, and a striking architecture, suggestive of tropical climes that impresses itself on the visitor.

New Orleans has alluring qualities not to be observed in any other city in this country. It is charmingly cosmopolitan, the city of good health, good spirits and withal, with business aggressiveness. It lies near the mouth of the Mississippi, at the head of the Gulf of Mexico and is the gateway between a vast interior country and the ports of the world. An ideal fall and winter resort, New Orleans blends the charm of antiquity with the strength of today. The eye catches on the one hand the sequestered courtyard, the token of the quiet family life, characteristic of the city, and on the other the modern warehouses proudly boasting the latest construction and most efficient modes of business. What many different places set forth as their own prime attraction, this city gathers together into one alluring whole, its tenacious hold on the past, its delightful climate, the quaint French quarter, the river front, and not least the charming social qualities of the people; these make it truly a Mecca for thousands of sightseers each season.



It is a sudden transition from such a simple picture as the paved court to the splendid marble stairway of the Grunewald, worthy of a palace of Europe, leading from the entrance floor below to the sociable foyer, which will be the real headquarters of the Association for the gossipy interchange of thought and experience that helps make these conventions worth while. Chairs are here scattered in intimate groups in the broad corridor and about its marble balustrade, and under the soft illumination of the roof of glass and amid florid decorations of potted plants and greenery, the hardships of life become a dream.

This is the New Orleans in which the Association invites its members to gather, and at a time when the shadow of war will permit the relaxing of serious thought; a city which in addition to its picturesque features is itself an example of good health administration.

(TENTATIVE.)

PROGRAMS OF THE FORTY-SEVENTH ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

New Orleans, La., October 27–30, 1919.

The following programs are preliminary. Final programs, giving dates of sessions will be published in the JOURNAL appearing October 7, or will be mailed to members of the Association.

Speakers will be notified about September 15 of dates of sessions.

Correspondence for each Section should be addressed to the program chairman for that Section.

Special programs will be presented on Personal Hygiene and Child Hygiene. The incomplete Personal Hygiene program is given in this issue. The Child Hygiene program will be announced later. The program chairman is Dr. Julius Levy, Director, Child Hygiene Division, Department of Health, Newark, N. J.

(TENTATIVE.)

PROGRAM OF THE GENERAL SESSIONS.

President, LEE K. FRANKEL, PH. D., *New York City.*
Vice-President, J. W. S. MCCULLOUGH, *Lieut.-Col.*, C. A. M. C., *Toronto, Ont.*
Secretary, A. W. HEDRICH, *Boston, Mass.*

Address correspondence to the Secretary at 169 Massachusetts Avenue, Boston, Mass.

The number of papers upon the general sessions program is necessarily restricted as the sessions, coming in the evening, are relatively short. Furthermore, it is desired this year to allow a maximum amount of time for general discussion.

Addresses of Welcome by the Governor of Louisiana and the Mayor of New Orleans.

ADDRESS. LEE K. FRANKEL, PH. D., *President, American Public Health Association.*

Historical Development of Public Health Work in England. SIR ARTHUR NEWSHOLME, K. C. B.

Reception to members and guests.

Symposium on Malaria.

Cure of Infected Persons as a Factor in Malaria Control. C. C. BASS, M. D., *Professor of Experimental Medicine, Tulane Medical College, New Orleans, La.*

DISCUSSION: Opened by W. S. LEATHERS, M. D., *State Health Officer, Jackson, Miss.*

Drainage as an Anti-Malarial Measure. J. A. LE PRINCE, *Senior Sanitary Engineer, U. S. P. H. S., Memphis, Tenn.*

Mosquito Work of the Bureau of Entomology: Other Insects from the Health Point of View. CAPT. D. L. VAN DINE (late U. S. A.), *Expert, Bureau of Entomology, U. S. Department of Agriculture, Mound, La.*

DISCUSSION: Opened by L. O. HOWARD, *Chief of Bureau of Entomology, Washington, D. C.*

Résumé: Methods, Costs, Results.

H. R. CARTER, *Assistant Surgeon General, U. S. P. H. S., Baltimore, Md.*

MAJOR GENERAL W. C. GORGAS, *U. S. A., Retired, Director of Yellow Fever Control, International Health Board, Panama.*

WICKLIFFE ROSE, PH. D., *General Director, International Health Board, New York City.*

J. A. FERRELL, M. D., *Director for the United States, International Health Board, New York City.*

Symposium on Influenza.

The Influenza Epidemic. Speaker to be announced.

Administrative Measures against Influenza. ALLEN W. FREEMAN, *State Commissioner of Health, Columbus, Ohio.*

What Medical Examination of Influenza Patients Has Shown in Cincinnati, Ohio. (Speaker to be announced.)

DISCUSSION: Opened by D. B. ARMSTRONG, M. D., *Executive Officer, Community Health Demonstration, Framingham, Mass.*

Reports of subcommittees on influenza.

Discussion of the Influenza Situation. Opened by W. C. WOODWARD, M. D., *Health Commissioner, Boston, Mass.*

Final reports or résumés on influenza.

Report of Committee on State Health Societies. W. A. EVANS, M. D., *Chairman, Chicago, Ill.*

Other committee reports.

Installation of new officers.

(TENTATIVE.)

PROGRAM OF THE SECTION ON PUBLIC HEALTH ADMINISTRATION.

Chairman, MR. CHESTER H. WELLS, *Wilmington, Del.*
Vice-Chairman, T. D. TUTTLE, M. D., *Seattle, Wash.*
Secretary, WM. F. COGSWELL, M. D., *Helena, Mont.*

Correspondence concerning this Section is to be addressed to the program chairman, Mr. C. H. Wells, State Health Department., Wilmington, Del.

Symposium: The Privy as a Public Health Problem. L. L. LUMSDEN, *Assistant Surgeon General, U. S. Public Health Service, Washington, D. C.*

The Rôle of the Privy in the Control of Typhoid Fever. * *

The Rôle of the Privy in the Control of Hookworm Disease. * *

The Rôle of the Privy in the Control of Infant Mortality. E. C. LEVY, M. D., *Director of Public Welfare, Richmond, Va.*

The Importance of Rural Education Work in the Control of the Privy Nuisance. * *

Practical Types of Sanitary Privies, with Exhibits. * *

Rural Sanitation, the Key to Disease Prevention in the South. WILLIAM S. KEISTER, M. D., *State Director of Sanitation, Montgomery, Ala.*

Hookworm Infection in Florida. B. L. ARMS, M. D., *Director, Bureau of Diagnostic Laboratories, State Board of Health, Jacksonville, Fla.*

Occurrence of Typhoid Fever After the Use of Bacterins. GEORGE A. SOPER, *Major, Surgeon General's Office, U. S. Army, Washington, D. C.*

* * Speaker to be announced later.

The State, the Municipality and the Private Tuberculosis Association in the Control of Tuberculosis. Donald B. Armstrong, M. D., *Executive Officer, Community Health Demonstration; National Tuberculosis Association, Framingham, Mass.*

Discussion: Frederick D. Hopkins, *Field Secretary, National Tuberculosis Association,* 381 Fourth Avenue, New York City.

Venereal Disease Control: Methods, Obstacles and Results. C. C. Pierce, *Assistant Surgeon General, U. S. Public Health Service, Washington, D. C.*

Discussion: Allen W. Freeman, M. D., *State Commissioner of Health, Columbus, Ohio,* and Matthias Nicoll, Jr., M. D., *Deputy Commissioner of Health, Albany, N. Y.*

Symposium: Public Health Administration.

Overcoming Difficulties in Measuring Efficiency and Justifying Appropriations for Public Health Work. Ernst C. Meyer, *Director of Surveys and Exhibits, International Health Board, 61 Broadway, New York City.*

Discussion: Carl E. McCombs, M. D., *Bureau of Municipal Research, New York City,* and Charles J. Hastings, M. D., *Medical Officer of Health, Department of Public Health, Toronto, Can.*

Relative Values in Public Health Work. * *

Discussion: Mayo Tolman, *Chief, Division Sanitary Engineering, State Department of Health, Charleston, W. Va.,* and Charles V. Chapin, M. D., *Health Officer, Providence, R. I.*

Relative Functions of State and Local Health Departments. Carl E. McCombs, M. D., *Bureau of Municipal Research, New York City.*

Types of Public Health Work for Cities of Various Sizes. Lawrence Veiller, *National Housing Association, New York City.*

How to Organize Your City for Public Health. * *

Discussion: Charles T. Nesbitt, M. D., *Health Officer, Akron, Ohio.*

Health Budgets and Financial Accounts. * *

The State Health Society: Its Purpose, Organization and Usefulness. W. A. Evans, M. D., *Health Department, Chicago Tribune, Chicago, Ill.*

Discussion: E. R. Kelley, M. D., *Commissioner of Health, State Department of Health, Boston, Mass.*

Accomplishments of Public Health. S. J. Crumbine, M. D., *Secretary, State Board of Health, Topeka, Kan.*

Causes of Army Rejections and What the Health Officer Can Do to Remedy Conditions. V. C. Vaughan, M. D., *University of Michigan, Ann Arbor, Mich.*

Discussion: W. C. Woodward, M. D., *Health Commissioner, Boston, Mass.*

What Should Be Done in the Control of Degenerative Diseases? B. E. Washburn, M. D., *County Health Supervisor, Raleigh, N. C.*

Discussion: F. S. Crum, *Assistant Statistician, Prudential Life Insurance Company, Newark, N. J.,* and M. M. Smith, M. D., *Managing Editor, Medical Insurance and Health Conservation, Dallas, Tex.*

Round Table Discussion:

How to Obtain Adequate Appropriations for Public Health.

Henry F. Vaughan, *D. P. H., Health Officer, Detroit, Mich.*

E. C. Levy, M. D., *Director of Public Welfare, Richmond, Va.*

* * Speaker to be announced later.

What Can We Do to Bring About Reasonable Compensation for Health Officers.

HERMANN BIGGS, M. D., *Commissioner of Health, State Department of Health, 25 West 45th St., New York City.*

ALLEN W. FREEMAN, M. D., *State Commissioner of Health, Columbus, Ohio.*

OSCAR DOWLING, M. D., *State Commissioner of Health, New Orleans, La.*

F. M. MEADER, M. D., *Director, Division of Communicable Diseases, State Department of Health, Albany, N. Y.*

Experiences of Health Officials in Obtaining Appropriations.

CHARLES SAVILLE, *Acting Secretary, Chamber of Commerce and Manufacturers' Association, Dallas, Tex.*

W. H. KELLOGG, M. D., *Secretary, California State Board of Health, Sacramento, Cal.*

CHARLES J. HASTINGS, M. D., *Medical Officer of Health, Department of Public Health, Toronto, Can.*

MAX COLTON, *Health Officer, Cumberland, Md.*

CHARLES V. CRASTER, M. D., *Health Officer, Newark, N. J.*

J. M. FURSTMAN, M. D., *Health Director, Department of Health and Safety, Bloomington, Ill.*

Preventive Medicine in War. MAZYCK P. RAVENEL, M. D., *University of Missouri, Columbia, Mo.*

DISCUSSION: CHARLES J. HASTINGS, M. D., *Medical Officer of Health, Department of Public Health, Toronto, Can.*

Public Health Perspective. L. L. LUMSDEN, *Assistant Surgeon General, U. S. Public Health Service, Washington, D. C.*

City Health Bulletins: Their Use and Misuse, and Necessity for Additional Mailing Privileges. MAX J. COLTON, *Health Officer, Cumberland, Md.*

Committee reports (10 minutes each).

(TENTATIVE.)

PROGRAM OF THE LABORATORY SECTION.

Chairman, R. B. FITZ-RANDOLPH, M. D., *Trenton, N. J.*
Vice-Chairman, A. B. WADSWORTH, M. D., *Albany, N. Y.*
Secretary, W. G. BISSELL, M. D., *Buffalo, N. Y.*

Correspondence concerning this Section should be addressed to the program chairman, Dr. Wadsworth, 278 Yates St., Albany, N. Y.

A Comparison of Stains for Diphtheria Bacilli. HENRY ALBERT, M. D., *Department of Pathology and Bacteriology, State University of Iowa.*

Some of the Factors Influencing the Potency of Biological Products. JOHN F. ANDERSON, M. D., *New Brunswick, N. J.*

The Preparation of Old Tuberculin. BENJAMIN WHITE, M. D.

The Value of Brilliant Green in Eliminating Errors Due to the Anaërobes in the Presumptive Test for B. Coli. THEODORE C. MUER, and ROBERT L. HARRIS, *Bacteriologists, Mt. Prospect Laboratory, Brooklyn, N. Y.*

Studies in the Clarification of Milk. PROF. CHARLES E. MARSHAL, *Department of Microbiology, Massachusetts Agricultural College, Amherst, Mass.*

The Test of a New Water Supply for the American Troops at Brest. PROF. EDWARD BARTOW, *University of Illinois, Chicago, Ill.*

(Subject to be supplied later.) A. PARKER HITCHENS, M. D.

Endemic Sprue in the Southern United States. Mark F. Boyd, M. D., *Laboratory of Bacteriology and Preventive Medicine, University of Texas.*

The Biology of the Pfeiffer Bacillus. Prof. E. O. Jordan, *Department of Hygiene and Bacteriology, The University of Chicago, Chicago, Ill.*

Some Observations on the Presence of Trichomonas Hominis in the Intestinal Tract. W. D. Stoval, M. D., *Director, Wisconsin State Laboratory.*

The Potency of Polyvalent Antimeningococcus Serum as Determined by the Agglutination Titre: The Potency of Serum Produced with Four Representative Strains as Compared with Serum Produced with Fifty Strains. A. B. Wadsworth, M. D., *Director, The Division of Laboratories and Research, New York State Department of Health, Albany, N. Y.*

A Study of the Bacillus Influenzae of Pfeiffer. A. B. Wadsworth, M. D., *Director, The Division of Laboratories and Research, New York State Department of Health, Albany, N. Y.*

A Study of the Classification of the Meningococci. A. B. Wadsworth, M. D., *Director;* Ruth Gilbert and Alice Hutton, *Division of Laboratories and Research, New York State Department of Health, Albany, N. Y.*

Reports of the following committees:

Committee of Standard Methods for the Bacteriological Examination of Milk. W. H. Park, M. D., *Chairman.*

Committee of Standard Methods for Preparing Tuberculin and Mallein. (Tentative.) A. P. Hitchens, M. D., *Chairman.*

Committee on Standard Methods for Standardization of Disinfectants. (Tentative.) Prof. E. B. Phelps, *Chairman.*

Committee of Standard Methods for the Bacteriological Examination of Shell Fish. P. D. Parsons, *Chairman.*

Committee of Standard Methods for the Examination of Air. Prof. C.-E. A. Winslow, *Chairman.*

Committee on Standard Methods of Bacterial Examination of Water and Sewage. Prof. E. P. Gorham, *Chairman.*

Committee on Standard Methods for Chemical Examination of Water and Sewage. Prof. Edward Bartow, *Chairman.* Prof. E. B. Phelps to act for Prof. Bartow.

Committee on Standard Methods of Analysis of Miscellaneous Food Products. (Tentative.) L. A. Round, *Chairman.*

Committee on Standard Methods for the Preparation and Standardization of Anti-Meningococcus Serum. (Tentative.) C. Krumwiede, M. D., *Chairman.*

Committee on Influenza (new). W. H. Park, M. D., *Chairman.*

Committee on Standard Methods of Preparing Diphtheria Antitoxin. (Tentative.) P. G. Heinemann, M. D., *Chairman.*

(TENTATIVE.)

PROGRAM OF THE SOCIOLOGICAL SECTION.

Chairman, Louis I. Harris, M. D., *New York City.*
Vice-Chairman, Ira S. Wile, M. D., *New York City.*
Secretary, Walter H. Brown, M. D., *Bridgeport, Conn.*

Correspondence concerning this Section should be addressed to the program chairman, Dr. Brown, at 280 Glenwood Ave., Bridgeport, Conn.

The Relations of Living Conditions to Health.

The Family Budget and Health. Royal S. Meeker, *Commissioner of Labor Statistics, Washington, D. C.*

The Sociological Aspect of Housing. Ira S. Wile, M. D., *New York City.*

The Sanitarian's Definition of a Living Wage. (Speaker to be announced.)

The Influence of Industrial Relations Upon Health.

(Proposed joint session with Industrial Hygiene Section not yet accepted.)

The Point of View of the Employer. Mr. Magnus W. Alexander, *National Industrial Conference Board, Boston, Mass.*

The Point of View of the Employee. Mr. Frank Morrison, *American Federation of Labor, Washington, D. C.*

The Point of View of the Public Health Worker. Louis I. Harris, M. D., *Director of the Bureau of Preventable Diseases, State Department of Health, New York City.*

Symposium on Community Medicine.

The Community Use of Group Medicine. Richard H. Cabot, M. D., *Boston, Mass.*

Health Centers. (Speaker to be announced.)

Evaluation of the Community Unit Experiment. Haven Emerson, M. D., *New York, N. Y.*

Miscellaneous.

A Study of the Social Condition of Dispensary Patients. E. H. Lewinski-Corwin, Ph. D., *New York City.*

The Sociological Aspect of the Hookworm. Oscar Dowling, M. D., *State Commissioner of Health, New Orleans, La.*

The Sociological Aspect of Pellagra. Ed. J. Wood, M. D., *Wilmington, N. C.*

(TENTATIVE.)

PROGRAM OF THE SECTION ON INDUSTRIAL HYGIENE.

Chairman, J. W. Schereschewsky, M. D., *Washington, D. C.*
Vice-Chairman, F. D. Patterson, M. D., *Harrisburg, Pa.*
Secretary, A. J. Lanza, M. D., *Washington, D. C.*

Correspondence concerning the Section on Industrial Hygiene is to be addressed to the program chairman, Dr. Lanza, 805 G Street, N. W., Washington, D. C.

Address of Chairman. Need and Method of Coördinating Federal, State and Local Health Agencies in Promoting Industrial Hygiene.

A Program for Organizing and Coördinating Industrial Clinics. T. Grier Miller, M. D., *University of Pennsylvania, Philadelphia, Pa.*

Utilizing the Out-Patient Department for Industrial Clinic Work. Wade Wright, M. D., *Massachusetts General Hospital, Boston, Mass.*

Utilizing Records of Plant Medical and Surgical Departments for Furthering Plant Hygiene. Bernard J. Newman.

Placement and Replacement of Employees on the Basis of Physical Examinations. Harry Mock, M. D., *Chicago.*

Classifying Employees and Increasing Production by Improving Their Physical Condition. Wm. J. Curry, M. D., *Holyoke, Mass.*

Fundamental Factors in Plant Hygiene. Don Lowe, M. D,, *Akron, Ohio.*

Health Hazards of Non-Poisonous Dusts. Emery R. Hayhurst, M. D., *University of Ohio, Columbus, Ohio.*

Health Hazards of the Dye Industry. C. E. Ford, M. D., *New York, N. Y.*

Systematic and Dermatic Effects from the Use of Cutting Oils and Compounds. H. D. Pease, M. D., *Lederle Laboratories, New York, N. Y.*

Industrial Fatigue: Present Status of Investigations. Frederic S. Lee, M. D., *New York, N. Y.*

Special Health Hazards of Women Industrial Workers. Lillian Erskine.
The Insurance Company and Industrial Hygiene. Austin D. Reiley, *New York.*
The Industrial Physician and Welfare Work. W. Irving Clark, M. D., *Worcester, Mass.*
The Part Played by Community Insanitation in the Incidence of Industrial Diseases. Roger Perkins, *Cleveland, O.*
Legislative Standards in the Field of Industrial Hygiene.

(TENTATIVE.)

PROGRAM OF THE SANITARY ENGINEERING SECTION.

Chairman, Mr. E. A. Fisher, *Rochester, N. Y.*
Vice-Chairman, Mr. Paul Hansen, *Springfield, Ill.*
Secretary, Mr. Samuel A. Greeley, *Chicago, Ill.*

Correspondence concerning the Sanitary Engineering Section is to be addressed to the program chairman, Mr. Hansen, State Board of Health, Springfield, Ill.

Report of the Committee on Water Supply. G. G. Earl, General Superintendent Sewerage and Water Board, New Orleans, La., *Chairman.* Discussion.
Report of Committee on Waterworks Operation and Analytical Methods. Edward Mayo Tolman, Director and Chief Engineer, Department of Health, Charleston, W. Va., *Chairman.* Discussion.
Report of Committee on Sanitary Control of Waterways. Harrison P. Eddy, Consulting Engineer, Boston, Mass., *Chairman.* Discussion.
Report of Committee on Sewerage and Sewage Disposal. Kennith Allen, Board of Estimate and Apportionment, New York, N. Y., *Chairman.* Discussion.
Report of Committee on Sewage Works Operation and Analytical Methods. C. B. Hoover, Chemist-in-Charge, Division of Sewage Disposal, Columbus, Ohio, *Chairman.* Discussion.
Report of Committee on Refuse Collection and Disposal. E. D. Rich, Chief Engineer, State Board of Health, Lansing, Michigan, *Chairman.* Discussion.
Report of Committee on Milk Pasteurization. H. A. Whittaker, Director, Division of Sanitation, Minneapolis, Minnesota, *Chairman.* Discussion.
Report of Committee on Swimming Pools. G. W. Simons, Jr., Chief Sanitary Engineer, State Board of Health, Jacksonville, Florida, *Chairman.* Discussion.
Report of Committee on Constitutions. Samuel A. Greeley, S. B., Consulting Engineer, Chicago, *Chairman.* Discussion.
Water Supply and Typhoid Fever. (Title Tentative.) Col. George A. Johnson, Construction Division of the Army, Washington, D. C.
Operating Features of St. Louis Waterworks. (Title Tentative.) E. E. Wall, Water Commissioner, St. Louis, Mo.
Control of Water Purification Plants in Ohio. W. H. Dittoe, B. S., Chief Engineer, State Department of Health, Columbus, Ohio.
Typhoid Fever Outbreak in Charleston, W. Va. (Title Tentative.) Edward Mayo Tolman, Director and Chief Engineer, Department of Health, Charleston, W. Va.
The Engineer in Public Health Work. (Title Tentative.) Morris Knowles and Maurice Scharff, Engineers, Pittsburgh, Pa.
Treatment of Wastes from Sugar Refinery. Langdon Pearse, M. S., and S. A. Greeley, S. B., Consulting Engineers, Chicago.
Sanitary Engineering Practices in Europe. (Title Tentative.) Thorndike Saville, Professor, University of North Carolina, Raleigh, North Carolina.

Paper. (Title not yet submitted.) FREDERIC BASS, Professor of Civil Engineering, University of Minnesota, Minneapolis, Minnesota.

Paper. (Title not yet submitted.) CHARLES SAVILLE, Sec'y, Chamber of Commerce and Manufacturers Association, Dallas, Texas.

(TENTATIVE.)

PROGRAM OF THE SECTION ON VITAL STATISTICS.

Chairman, WM. H. GUILFOY, M. D., *New York City.*
Vice-Chairman, R. H. COATS, *Ottawa, Ont.*
Secretary, RICHARD C. LAPPIN, *Washington, D. C.*

Correspondence concerning this Section is to be addressed to the program chairman, Mr. Lappin, Bureau of the Census, Washington, D. C.

Traffic Regulation as a Means of Preventing Injury and Death from Street Vehicles. S. J. BYRNE, M. D., *Assistant Registrar of Records, Department of Health, Brooklyn, N. Y.*

Election of Nominating Committee.

Results Appearing in the Forthcoming Second Bulletin of United States Life Tables. JAMES W. GLOVER, PH. D., *Professor of Mathematics and Insurance, University of Michigan, and Expert Special Agent, Bureau of the Census, in charge of the preparation of the United States Life Tables, Ann Arbor, Mich.*

Report of the Committee on Institutional and Hospital Statistics. FREDERICK L. HOFFMAN, LL. D., *Third Vice-President and Statistician, Prudential Insurance Company of America, Newark, N. J., Chairman.*

Report of the Committee on Morbidity Reports and Statistics. JOHN T. BLACK, M. D., *State Commissioner of Health, Hartford, Conn., Chairman.*

Report of the Committee on Membership. WM. F. PETRIE, *Chief, Division of Vital Statistics, Department of State, Lansing, Mich., Chairman.*

Report of the Committee on Registration Affairs. WILLIAM H. DAVIS, M. D., *Chief Statistician for Vital Statistics, Bureau of the Census, Washington, D. C., Chairman.*

Report of the Committee on the Accuracy of Certified Causes of Death and Its Relation to Mortality Statistics and the International List. HAVEN EMERSON, M. D., *New York City, Chairman.*

Report of Nominating Committee and Election of Officers and Section Council.

Vital Statistics in Canada. HON. R. H. COATS, *Dominion Statistician, Ottawa, Ont.*

Malaria Control in Georgia. T. F. ABERCROMBIE, M. D., *Secretary, State Board of Health, Atlanta, Ga.*

Malaria in California. FREDERICK L. HOFFMAN, LL. D., *Third Vice-President and Statistician, Prudential Insurance Company of America, Newark, N. J.*

Pellagra in Mississippi. R. W. HALL, M. D., *Director, Bureau of Vital Statistics, State Board of Health, Jackson, Miss.*

The Economics of Health Protection. HENRY B. HEMENWAY, M. D., *District Health Officer, Division of Vital Statistics, State Department of Public Health, Springfield, Ill.*

Report of the Committee on Legislation. W. A. PLECKER, M. D., *State Registrar of Vital Statistics, Richmond, Va., Chairman.*

Report of the Committee on Amendments to the Standard Certificate of Birth. WILLIAM H. DAVIS, M. D., *Chief Statistician for Vital Statistics, Bureau of the Census, Washington, D. C., Chairman.*

Report of the Committee on Morbidity Records and Mortality Statistics in Industry. LOUIS I. DUBLIN, PH. D., *Statistician, Metropolitan Life Insurance Company, New York City, Chairman.*

Statistics of the Influenza Epidemic.

Influenza, United States Army, 1918: Some Observations, Statistical and Otherwise. Col. D. C. Howard and Lieut.-Col. A. G. Love, *Medical Corps, Washington, D. C.*

Influenza Morbidity Statistics: General Results of Surveys by the United States Public Health Service. W. H. Frost, *Surgeon, United States Public Health Service, Washington, D. C.*

Influenza Epidemic in the Registration Area for Deaths. William H. Davis, M. D., *Chief Statistician for Vital Statistics, Bureau of the Census, Washington, D. C.*

Statistics of the Metropolitan Life Insurance Company Covering the Influenza Epidemic. Lee K. Frankel, Ph. D., *Third Vice-President*, and Louis I. Dublin, Ph. D., *Statistician, Metropolitan Life Insurance Co., New York City.*

Report of the Committee on Influenza Statistics. Edwin W. Kopf, *Assistant Statistician, Metropolitan Life Insurance Company, New York City, Chairman.*

Vital Statistics of the Influenza Epidemic in Connecticut. Prof. C.-E. A. Winslow and J. F. Rogers, *Yale University, New Haven, Conn.*

The Preliminary Report on Certain Statistics of the Influenza Epidemic of 1918 in New York State. Otto R. Eichel, M. D., *Director, Division of Vital Statistics, State Department of Health, Albany, N. Y.*

Variations in Influenza Incidence and Mortality at Different Periods of the Epidemic. Edgar Sydenstricker, *Statistician, United States Public Health Service, Washington, D. C.*

Report of Section Council and Nomination of Standing Committees for Ensuing Year.

Infant Mortality in the Registration Area for Births. William H. Davis, M. D., *Chief Statistician for Vital Statistics, Bureau of the Census, Washington, D. C.*

Discussion: Led by S. J. Byrne, M. D., and Arthur J. O'Leary, M. D., *Assistant Registrars of Records, Department of Health, New York City.*

Report of the Committee on Nonresident Deaths. W. R. Batt, M. D., *State Registrar of Vital Statistics, Harrisburg, Pa., Chairman.*

Report of the Committee on the 1920 Census and Its Relation to Vital Statistics. John E. Monger, M. D., *State Registrar of Vital Statistics, Department of State, Columbus, Ohio, Chairman.*

Report of the Committee on Forms and Methods of Statistical Practice. C. St. Clair Drake, M. D., *State Director of Public Health, Springfield, Ill., Chairman.*

Report of the Committee on Standard Symbols in Vital Statistics Analytics. Edwin W. Kopf, *Assistant Statistician, Metropolitan Life Insurance Company, New York City, Chairman.*

Report of the Committee on Resolutions. Hon. J. W. Armstrong, *Municipal Commissioner of Manitoba, Winnipeg, Manitoba, Chairman.*

Unfinished Business.

(TENTATIVE.)

PROGRAM OF THE SECTION ON FOOD AND DRUGS.

Chairman, Mr. Hermann C. Lythgoe, *Boston, Mass.*
Vice-Chairman, Fred C. Blanck, M. D., *Washington, D. C.*
Secretary, Prof. James O. Jordan, *Boston, Mass.*

Correspondence concerning this Section is to be addressed to the program chairman, Harry W. Redfield, M. D., Bureau of Chemistry, Washington, D. C.

Relation of Plane of Nutrition to Public Health. E. V. McCollum, M. D., *School of Hygiene and Public Health, Johns Hopkins University.*

Problem of Adequate Milk Supply. Henry C. Sherman, *Professor of Food Chemistry, Columbia University, New York City.*

Future of Food and Drug Control: Needed Developments. CARL L. ALSBERG, PH. D., *Chief, Bureau of Chemistry, Washington, D. C.*

Uses, Possibilities and Limitations of Bacteriology in Food Control. E. O. JORDAN, *Professor of Bacteriology and Hygiene, University of Chicago, Chicago, Ill.*

Organization of Control of Pasteurization. F. O. TONNEY, M. D., *Board of Health, Chicago, Ill.*

DISCUSSION: By E. O. JORDAN, *Chicago.*

What Should Be the Basis of the Control of Dehydrated Foods? PROF. SAMUEL C. PRESCOTT, *Massachusetts Institute of Technology, Boston, Mass.*

DISCUSSION: By E. V. MCCOLLUM, M. D., *Baltimore.*

Effect of Self-Imposed Inspection of the Trade on Quality of Canned Foods. H. M. LOOMIS, *National Canners Association, Washington, D. C.*

Purpose and Function of Commercial Control Laboratories. L. M. TOLMAN, *Chief Chemist, Wilson and Company, Chicago, Ill.*

Army Food Supply, Specifications and Standards, Inspection and Control. E. L. P. TREUTHARDT, *Captain, Subsistence Division, Inspection Branch, Quartermaster Corps, Washington, D. C.*

Federal Meat Inspection. JOHN R. MOHLER, M. D., *Chief, Bureau of Animal Industry, Washington, D. C.*

State and Municipal Meat Inspection. JOHN R. MOHLER, M. D., *Chief, Bureau of Animal Industry, Washington, D. C.*

Results Obtained by Combining a Number of Insanitary Slaughter Houses into One Central Abattoir with City Inspector. HON. ED. H. MCCUISTION, *Mayor, Paris, Tex.*

A Model Law for City Meat Inspection. W. PARKER JONES, *Washington, D. C.*

The Country Slaughter House: How It Should Be Constructed. GEORGE H. PARKS, *Bureau of Animal Industry, Washington, D. C.*

The Proper Handling and Refrigeration of Meat from the Time It Leaves the Packers' Hands until Consumed. LOUIS D. HALL, *Bureau of Markets, Washington, D. C.*

Report of Committee on Meat Inspection. GEORGE H. SHAW, *Bureau of Animal Industry, Washington, D. C.*

Report of Committee on Retail Distribution and Marketing of Foods. MISS MARION TALBOT, *Professor of Household Administration, University of Chicago, Chicago, Ill.*

Report of Committee on Conservation and Development of Food Supplies. CARL L. ALSBERG, PH. D., *Chief Bureau of Chemistry, Washington, D. C.*

Report of Committee on Nutritional Problems. HENRY C. SHERMAN, *Professor of Food Chemistry, Columbia University, New York City.*

Report of Committee on Relation of Food to Disease. MILTON J. ROSENAU, M. D., *Professor of Preventive Medicine and Hygiene, Harvard Medical School, Boston, Mass.*

Report of Committee on Preparation, Packing and Transportation of Food. WILLIAM H. LIPMAN, M. D., *Medical Director, Swift and Company, Chicago, Ill.*

Report of Committee on Cold Storage. PETER H. BRYCE, M. D., *Chief Medical Officer, Canadian Immigration Service, Ottawa, Can.*

Report of Committee on Control of Milk and Dairy Products. HARRY A. HARDING, PH. D., *Professor of Dairy Bacteriology, University of Illinois, Urbana, Ill.*

Report of Committee on Canning. W. D. BIGELOW, M. D., *National Canners Association, Washington, D. C.*

Report of Committee on Municipal Food Administration. OLE SALTHE, *Board of Health, New York City.*

Report of Committee on Drugs and Nostrums. ARTHUR J. CRAMP, M. D., *Director of the Propaganda for Reform Department of the Journal of the American Medical Association, Chicago, Ill.*

Report of Committee on Habit Forming Drugs. CHARLES E. TERRY, M. D., *Editor, The Delineator, New York City.*

(TENTATIVE.)

SPECIAL PROGRAM ON PERSONAL HYGIENE.

Correspondence concerning this program is to be addressed to A. W. Hedrich, Secretary, A. P. H. A., 169 Massachusetts Avenue, Boston.

Physical Education and Health. D. A. Sargent, M. D., *President, Sargent School of Physical Education, Cambridge, Mass.*

Milk as a Food. E. V. McCollum, M. D., *Johns Hopkins University, Baltimore, Md.*

Food in Relation to Healthy Living. H. C. Sherman, Ph. D., *Professor of Food Chemistry, Columbia University, New York City.*

Baths. J. H. Kellogg, M. D., *Superintendent, Battle Creek Sanitarium, Battle Creek, Mich.*

Anxiety and Fear. Thomas W. Salmon, M. D., *Medical Director, National Committee for Mental Hygiene, 50 Union Square, New York City.*

(Additional papers to be announced later.)

BOOKS AND REPORTS REVIEWED

The Health Officer. *Frank Overton, A. M., M. D., D. P. H., Sanitary Supervisor, New York State Department of Health, and Willard J. Denno, A. B., M. D., D. P. H., Medical Director of the Standard Oil Co. Philadelphia and London: W. B. Saunders Company. Pp. 512. Price $4.50 net.*

Though primarily intended as a manual of practical directions to health officers the authors have introduced a good deal of general information which the man away from the large centers of population will be glad to have at hand. Such are the chapters on bacteriology and immunity and much of those on epidemiology, food values and ventilation. It thus becomes a sort of abridged text-book on hygiene as well as a handbook of practice. The first six chapters relate to the organization and relation of local, state and Federal health departments and the qualifications and duties of officials. The chief criticism of this, and also of the chapters on procedures and a local code, and indeed of other parts of the book, is that it is based too exclusively on conditions in the state of New York. Though every one realizes the splendid work done in that state, there is much of good elsewhere and the form of government and method of legislation differ so much in other states that some of the statements would not apply. A very suggestive and helpful chapter is one on records and reports. Then come chapters on vital statistics, public health nursing and education. Of course a large portion of the book is occupied with specific directions for the management of the infectious diseases. The work is intended primarily for health officers in the smaller communities and it is probably for this reason that quite a little about treatment and much about diagnosis has been introduced. It is shown that diagnostic skill, tactfully employed in assisting the practicing physician, is a great asset for the health officer. It is a pleasure to see that venereal diseases receive due attention. A chapter on mental defects has been introduced, presumably because, in New York, local health officers have certain duties in the disposition of the insane. The discussion of nuisances, vermin, and the disposal of household wastes is unusually up to date and practical. There is a chapter on camp sanitation, a subject which has received much of attention in New York and should receive more in other states. Of course one finds chapters on milk and other food control, on sanitary engineering, water and sewage. Industrial hygiene is given a few pages. One might wish that the chapter on child hygiene had been considerably expanded, even if space had to be taken from subjects of less importance and general interest. The book is an excellent exposition of the best present day thought.

C. V. Chapin.

American Red Cross Text-Book on Home Hygiene and Care of the Sick. *Edited by Jane A. Delano, R. N. Revised and rewritten by Anne Hervey Strong, R. N.*

This compendium of hygiene and home nursing well deserves the qualifying term, *Multum in parvo.* The object of the book is excellently set forth in the introduction as being "to supply a little knowledge of sickness, which though limited may yet be safe." The great drawback to most home nursing courses is that young ladies taking them thereafter believe themselves to be trained nurses equipped for any exigency. Professor Strong's broad experience as a teacher is sufficient guarantee that no book written by her will convey any such erroneous impression.

The book starts off with a succinct chapter on the causes and prevention of sickness, dealing with parasites, communicable disease, and the defenses of the body against such disease. The non-communicable diseases are also touched upon. Then follows an excellent section on the hygiene of environment and person. Most of the essentials for the baby's health and happiness are to be found in the third chapter. Next, the common indications of sickness are dealt with in simple and clear language, those of mental illness not being neglected. Succeeding chapters take up the equipment and care of the sick room, beds and bedmaking, baths and bathing, feeding the sick, and similar practical subjects. A chapter on common ailments and emergencies is well handled; that on special points in the care of children, convalescents, chronics, and the aged is well worth reading by anyone. An appendix and a glossary complete the book.

Various minor points are open to criticism as in most books. In the light of our experiences of last year influenza can hardly be classed among the diseases caused by micro-organisms that are now well known. Again, the problem of the examination of the food handler, though theoretically simple is practically very hard to solve. Another point noted was the recommendation that except in the case of the aged or sick the room temperature had better be between 60° and 65°; as a matter of fact few Americans are comfortable at such low temperatures in home or schoolroom.

On the whole, however, in summing up this little volume it may be said that it is judiciously written, clear, modest yet ample in scope. The author shows a judiciousness in the use of adjectives and an understanding of the meaning of single words rare in books of this kind. A careful study of this manual by the general public would render the task of the public health official as well as of the practicing physician very much easier.

Merrill E. Champion, M. D.

Rules for Recovery from Tuberculosis. A Layman's Handbook of Treatment. *Lawrason Brown, M. D. Third edition. Philadelphia: Lea & Febiger 1919. Price, $1.50.*

The title of this book is somewhat misleading for it is not an enumeration of a series of rules for the patient to observe, but as Dr. Brown points out in the preface the object of the book is to make clear the whys and wherefores of many rules ordinarily given to patients in an oracular manner. "The day has come when the physician should look upon the patient not as an ignorant child but as a human being endowed with more or less mature intelligence; as one in fact who has a right to demand an explanation of the way certain effects follow certain causes." It is for this very reason that the physician will find this book of as much help as it will be to the patient. He will find therein many practical points on the care of the patient, on the preparation of the room, the sleeping porch, etc., details that have proved satisfactory at the most famous tuberculosis sanatorium in this country.

This work is an important contribution to public health education and it would be well worth while for those engaged in public health work to read it as a model of presentation of a medical subject. The reviewer knows of few attempts in the field of public health education that are comparable to this work in the matter of simplicity and forcefulness of presentation.

The book contains twenty-six chapters, each dealing with some particular topic of interest to tuberculous patients. Some of them are on rest, food, fresh air, sleeping out of doors, exercise, body temperature, body weight, climate, care of the mouth, food values, tuberculin, and how and when we contract tuberculosis. Each chapter is really a compendium of the topic treated and the material included contains everything up to date. The chapters on diet and air are particularly well presented and it is interesting to note that the very last word on nutrition and ventilation is included. This little book is essentially a treatise on personal hygiene, and contains many excellent sermonettes on healthful living. Chapter xii, for example, "On Cultivating an Outdoor Hobby and on Recreation," could well be used as a basis for a lecture on this topic.

It is interesting to note that Dr. Brown believes that the most efficient methods of combating tuberculosis now at our disposal are: The greatest protection of children during the first few years of life and the maintenance, especially from the fifteenth to the thirtieth year, of the individual's resistance to disease.

D. Greenberg.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horowitz and Mayo Tolman.

Management of War Hysteria.—In a paper on this subject before the American Medical Association at its recent meeting at Atlantic City, Tom A. Williams, M. D., of Washington finds that nearly 10 per cent of the soldiers incapacitated during an attack are found to have hysteria. A large proportion of them can be restored immediately if skillfully managed, and can be returned to duty without loss of efficiency. The physician must understand thoroughly the psychological mechanism of the patient and must exercise a dynamic volition which will compel him to use the effort demanded. In the more complex cases where hysteria has become fixed individual analysis is necessary, and a longer course of suggestion and persuasion. The inert man must be differently treated from the determined man. The former is easier to cure, but more difficult to keep well. The best method of treatment is to change the patient's mental attitude by reëducative procedure. In order to accomplish this it is essential that the physician be able to enter into the thoughts and feelings of the patient. It is then easy to lead him out of the woods into the light.

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Cancer and the Nurse.—As soon as the American Society for the Control of Cancer was organized and entered upon its program of promoting the education of the public regarding the early recognition and treatment of malignant disease, it was realized that the nurse, and particularly the public health nurse, would prove an invaluable ally in this campaign. Accordingly the society has from the beginning endeavored to secure the active coöperation of all nursing organizations, national, state and local, of the leading training schools, and of individual nurses throughout the country. Early in the history of the movement the three great national organizations of nursing adopted resolutions which are printed below and many state and local associations have likewise manifested constant interest and a ready willingness to help in every way possible.

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Meeting of Women Physicians.—Women physicians from all over the United States will convene in New York the middle of September to discuss social and medical problems. A six weeks' conference will be conducted by the Social Morality Committee.

*

Tomato Juice for Infants.—Within the past few years it has been discovered that infants who do not receive breast milk will fail to thrive in a perfectly normal manner, unless there is added to their diet fresh vegetable or fruit juices. There is a vital food element in these juices called "vitamines," abundant in breast milk, but lacking in boiled or pasteurized cows' milk and in all prepared baby foods—which stimulates body growth and prevents the occurrence of scurvy, a distressing and common disease in infancy.

A teaspoonful daily, at the age of a few weeks, an ounce at six months, two ounces at nine months and two to four ounces at the age of one year, will suffice to protect the child.

Now that the season for harvesting tomatoes is at hand, parents' attention is called to the advisability of canning tomatoes for the winter months—if for no other reason than to supply this vital food element to their babies.—Albert Smedes Root, M. D., *Publications N. C. State Board of Health.*

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Undertakers' Health Association.—"Funeral directors and embalmers," the announcement begins, "have come to be recognized as sanitarians, who, while caring for the dead, also protect the health of the living. It is our purpose to focus into a new organization for mutual benefit and increased opportunity, this desire of the profession to be of greater service to the public and to each other." For this purpose the Sanitarian Club of America is to be incorporated. It is to be an organization of mutual benefit, with accident insurance against septic poisoning, a reference library and headquarters in the building in which the official organ is published. There will be a sort of clearing house of information, a rating house of financial responsibility of distant clients and an employment bureau.

*

Undernourished School Children.—The New York City Health Department has recently shown that there has been a marked increase in undernourishment among school children during the last three years. In 1914, 5 per cent were undernourished; in 1915, 6 per cent; and in 1918, 19 per cent. The increase is due to insufficient or wrong feeding. At the present time, one child out of every five in New York City is seriously undernourished, and at least two additional ones out of every five, are classed as being between good health and an undernourished condition. It is interesting to note that the average increase in wages since the beginning of the war has been 18 per cent, while the average increase in the cost of food has been nearly

100 per cent.—*Boston Med. and Surg. Jour.*, July 3, 1919. (*M. P. H.*)

✱

The British Ministry of Health.—The first British Minister of Health to be appointed is the Rt. Hon. Christopher Addison, M. D., M. P.

With the creation of the Ministry of Health the Local Government Board will disappear, its functions and its staff being handed over to the Ministry of Health, although until July 1 there will, as a matter of fact, be both the Ministry of Health and the Local Government Board in existence for a small number of technical purposes. With the Local Government Board there will also disappear the Insurance Commissions, whose powers will be handed over to the Ministry of Health.—*Medical Officer*, June 28, 1919, 220. (*D. G.*)

✱

Cause of Sporadic Case of Meningitis.—An infant on a farm developed cerebrospinal meningitis. There was no record of any previous cases in this locality, and the case was definitely traced to a soldier who had visited the home and fondled the child, January 28. The soldier said that to his knowledge he had never seen or been in contact with, or known of a case of meningitis in his regiment. He was found to be a meningococcus carrier. Nasal cultures from all other persons who visited the farm were negative. June 10, the organism still persisted, though the man had been under treatment and had used irrigations of all kinds.

As the disposition of carriers is very largely a public health measure, a questionnaire was sent to the various state departments of health in order to ascertain their mode of procedure regarding carriers of meningitis. The answers revealed very little uniformity in the isolation of patients and in dealing with carriers. There were no provisions for the detection of healthy carriers and the compulsory bacteriologic examination of contact. Public health legislation on this subject is imperative if we are going to limit the spread of communicable disease.—Shaw, H. L. K., *Jour. A. M. A.*, July 19, 1919, 219. (*D. G.*)

✱

Effect of Cement Inhalations upon Healthy and Tuberculous Lungs.—The observation was made that tuberculosis is uncommon among the workers about lime kilns; hence the question arose as to whether or not the lime might have a restraining effect upon any tubercle bacilli that might gain entrance to the lungs. Former efforts to investigate the matter were unsuccessful for want of proper technic and apparatus. The author sought to meet this want in the form of a specially devised dust blower run by a water wheel. Lime dust alone and lime dust mixed with tubercle bacilli were agitated in the air in which guinea-pigs were confined and proper tests made of the lesions produced after varying lengths of exposure.

The results were again negative in that there was no demonstrable beneficial effect produced upon simultaneously or previously produced tuberculosis, although the dust alone had no apparent detrimental effect upon the lung tissues, as ascertained by microscopical examination of test animals and controls. The dust was taken up the lungs and deposited in the interstitial tissues and was from time to time eliminated.—Nagai S., Abstract No. 508 in *China Med. Jour.*, 1919. (*D. G.*)

✱

Forward Steps in the Tuberculosis Campaign in Massachusetts.—In opening the annual meeting of the Massachusetts Tuberculosis League, Dr. Vincent Y. Bowditch enumerated the following lines along which the anti-tuberculosis campaign is to be waged in his state. He favors the development and extension of the "consultation service," whereby an expert diagnostician in tuberculosis holds clinics in different communities and aids the local physicians in diagnosing doubtful cases. This service really tends to educate the physician in the recognition and diagnosis of the disease. He also favors the development of the "Health in Industry" Department. Trained nurses are sent into mills and factories to supervise the health of the operatives. The work of the "Malnutrition Clinic" is also to be developed further. Weak children at hospital clinics are taken in charge by a physician, properly fed, and trained in the care of their health until they become normal. It is also planned to aid the returned and discharged tuberculous soldiers, and to make special tuberculosis surveys in communities, by which to locate the tuberculous. This work has already begun and is being conducted by field nurses. A more extended effort is to be made to get proper employment for thoroughly arrested cases of tuberculosis and those who are almost recovered, when they are under competent, expert medical and nursing care. Work has been found to be valuable, not only as a therapeutic aid, but as a financial help. Whenever possible tuberculous individuals will be urged to resume their vocational occupations, where the latter are not dangerous to their condition. Lastly, it is urged, that sanatoria be erected for the middle economic group, the large group, that will not ask for charity, yet which cannot afford the high cost of treatment in the expensive, privately owned institutions.—*Boston Surg. and Med. Jour.*, July 17, 1919. (*M. P. H.*)

Epidemic Sore Throat.—An epidemic of streptococcic sore throat prevailing during February, 1919, at the U. S. Naval Hospital, Chelsea, Mass., is described by the author: Attention was first called to it by the numerous instances of postoperative rise in temperature in surgical cases, with sore throat and a subsequent infection of clean surgical wounds with a peculiar hemolytic streptococcus in almost pure culture. The symptoms at the onset of the sore throat were characteristic of acute bacterial anaphylaxis—sudden chilliness, dizziness, fever, headache, backache, general aching and prostration, with occasionally an initial leukopenia. The secondary symptoms localized in the tonsils or lateral pharynx with complications referable to the submaxillary and deep cervical lymph glands, the nasal sinuses, the middle ear and mastoid and the face, and metastasis to the surgical wounds and the joints. In no case was there a complicating bronchitis or broncho-pneumonia, and in this stage there was a constant mild leukocytosis. The microorganism constantly recovered from the throat and infected wounds was a hemolytic streptococcus, growing in large moist droplet-like colonies on blood agar medium. The epidemic originated in the nose and throat surgical wards, and spread by contact to others. There was no possibility of milk infection in this epidemic. Control was effected by suspension of all surgical operations for a period of three weeks, immediate isolation of all acute throat cases, and elimination from the surgical service of all carriers of hemolytic streptococci. The infection was evidently extensively spread outside of the hospital, many new cases having been admitted from outside stations.—Keegan, J. J. *Journal A. M. A.*, May 17, 1919, 1434. (*D. G.*)

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Effect of Wood Dust on Health.—There seems to be a decided difference of opinion as to the effects of wood dust on health. Chronic catarrhal conditions, asthma, etc., which are brought about by the constant breathing of wood dust are often attributed to other causes such as a common cold. However, the marked labor overturn in woodworking industries would indicate that many men are affected to such a degree as to cause them to seek other employment.

A large insurance company found that out of 2,538 deaths from all causes in occupations involving the inhalation of wood fibre dust, 24.7 per cent were due to consumption, the normal percentage for this disease being 14.9. Sir Thomas Oliver gives the number of deaths due to tuberculosis per 1,000 persons as 2.39 for occupations without production of dust and 5.96 for trades giving rise to dust from wood and paper. Wood dust in addition to its importance as a predisposing cause of tuberculosis presents at least six other sources of danger: (1) carrying of infection, (2) the irritation of the respiratory and digestive tracts, (3) the cutting off of light, (4) the danger of fire from the accumulation of wood dust and shavings, (5) the danger of accident from slipping on sawdust or stumbling over accumulations, (6) actual poisoning by certain types of wood which contain active principles known to be poisonous. (*M. T.*)

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Prevention of Pneumonia by Inoculation.—There are now available for study the results of two similar series of prophylactic inoculations against pneumonia made at Camps Upton and Wheeler. At Camp Upton a saline pneumococcus vaccine containing Types I, II and III was used.

Some twelve thousand seasoned troops were inoculated, which number represented approximately 40 per cent of the strength of the entire command. While the period of observation after the inoculation was a brief one (ten weeks), definite evidence of protection was made apparent by the fact that no cases of pneumonia of Types I, II or III occurred in the vaccinated groups, while twenty-six cases due to these types of infection originated in the unvaccinated groups. Only seventeen cases of pneumonia of all types (including Type IV and the streptococcic) developed among the vaccinated as contrasted with 172 cases among the unvaccinated men.

At Camp Wheeler the conditions differed materially from those at Camp Upton in several respects: first, that a large number of the troops were recruits and consequently more susceptible to the disease; second, that the work was complicated by the influenza epidemic, and third, that a lipovaccine was substituted for the saline vaccine previously used.

The study had to be discontinued when demobilization was begun, but it covered a period of approximately three months. During this time 363 cases of pneumonia of all varieties occurred among the vaccinated men (80 per cent of the total command) and 327 cases among the unvaccinated (20 per cent of the command); almost as many, therefore, among the unvaccinated one-fifth as among the vaccinated four-fifths. Excluding cases that developed within one week after the inoculation, namely, before protection of any kind could be expected to have developed, only eight cases of Type I, II and III pneumonia developed among the vaccinated men. These were all secondary to severe cases of influenza.

As a result of this work the conclusion is reached that even in civil life, where pneumonia outranks other infectious diseases in the mortality list, inoculation against pneumonia will find a large field of

usefulness, especially when relatively nontoxic vaccines such as lipovaccines are available.—Editorial. *Jour. A. M. A.* May 24, 1919, 1546. (*D. G.*)

✻

Venereal Disease in the Second Million.—The U. S. Public Health Service has prepared a table showing the rank of important cities according to the proportion of drafted men with venereal diseases among the second million who went into the army. The figures show the ratio of infections per thousand men received at the training camps. Cities with 500,000 inhabitants or more rank as follows:

St. Louis, Missouri	85.81
Baltimore, Maryland	72.84
Detroit, Michigan	62.27
Chicago, Illinois	57.05
Cleveland, Ohio	44.43
Pittsburgh, Pennsylvania	43.34
Philadelphia, Pennsylvania	37.25
Los Angeles, California	31.72
Boston, Massachusetts	25.73
New York City	24.40

Among the cities having a population of 100,000 to 500,000 it is seen that the southern cities tend to show high ratios. It is to be noted that the second million drafted included a great many negroes which probably helped materially to swell the percentages of the southern cities:

Fort Worth, Texas	186.67
Birmingham, Alabama	185.71
Houston, Texas	171.63
Dallas, Texas	143.03
Columbus, Ohio	142.31
Memphis, Tennessee	132.63
San Antonio, Texas	122.26
Atlanta, Georgia	119.26
Nashville, Tennessee	96.67
New Orleans, Louisiana	92.89
Richmond, Virginia	92.40
Indianapolis, Indiana	91.78
Washington, D. C.	75.33
Buffalo, New York	44.65
Syracuse, New York	43.06
Newark, New Jersey	42.34
Minneapolis, Minnesota	40.87
St. Paul, Minnesota	39.80
Seattle, Washington	38.31
Oakland, California	37.71
Fall River, Massachusetts	24.39
Providence, Rhode Island	24.28
Worcester, Massachusetts	23.04
Patterson, New Jersey	21.28
Cambridge, Massachusetts	20.33

Of the cities between 50,000 and 100,000, Savannah, Ga., heads the list with a rate of 274.5 with Bayonne, N. J., at the bottom with a rate of 8.2. —*Social Hygiene Bulletin*, May, 1919. (*D. G.*)

✻

Arguments Against Compulsory Health Insurance.—In *Northwest Medicine* for May, 1919, Dr. O. M. Rott presents the arguments against compulsory health insurance. In the first place such a system is paternalistic and dulls the sensibilities' initiative and self reliance of a people. Health insurance in Germany and Austria has not bettered the conditions of the wage earner but has induced a tendency among them to be sick often or to imagine that they are sick. Health insurance is also condemned because it smacks of charity, because it deadens medical research and overworks the physician, because it is opposed by an organized labor represented by the American Federation of Labor, because it lowers the standards of the medical profession and because it will increase poverty by creating a larger dependent class. An employer who has to pay for health insurance will choose his employees carefully, and only after a thorough medical examination. (*M. P. H.*)

✻

Food Conservation Reflected in Garbage Statistics.—Accurate reports received by the U. S. Food Administration from 96 cities having an aggregate population of more than 26,000,000 show that during 1917 and 1918 ten per cent less garbage was collected than in 1916. The statistics regarding the quality of the garbage are even more significant than the figures regarding quantity. Twelve cities that have carefully operated reduction plants and show accurate records were chosen as representative. These cities show a decrease of thirty per cent in grease tonnage recovered for the period 1917–18 as compared with 1916–17. In Columbus, Ohio, and Wilmington, Delaware, the amount of grease recovered was but half that of the pre-war period, showing a great curtailment in the quantity of meats and fats reaching the garbage can.—*Journal of Ind. and Eng. Chemistry*, Nov., 1919. (*M. T.*)

✻

Build Sanatoria Now for Tuberculosis Following Influenza.—It is reasonably certain that the epidemic of influenza will be responsible for a large increase in the prevalence of tuberculosis and, such being the case, steps should be taken at once to build new sanatoria and enlarge the already existing tuberculosis hospitals.

It is an accepted principle that practically any case of tuberculosis can be cured if treatment is applied soon enough. Many influenza victims who, in the ordinary course of events would have resisted tuberculosis, have had their vitality so lowered as to give way to the inroads of the tubercle bacilli. If means are not at hand for caring for these victims as soon as the disease appears many of them will die. The time to build sanatoria is now.—*Ohio Public Health Journal*, January, 1919.

Ohio estimates her influenza death totals for the months of October, November and December at 22,000. (*M. T.*)

The Preventive Aspect of Mental Deficiency.—In a program for the prevention of mental deficiency the first step to be taken is a well-considered and thoroughly executed maternity and child welfare plan, particularly ante-natal work, because many of the causes of mental deficiency such as syphilis, meningitis, polio-encephalitis, epilepsy, etc., can be recognized in infancy. Since heredity plays such an important part in feeble-mindedness, the control of this factor is a long step towards prevention. Then too, sterilization and segregation are other methods at our disposal. There must be better opportunities for study of mental defectives at our command. Every large city should have a psychiatric clinic properly equipped for the diagnosis and grading of defectives, and particularly for the study of borderland cases. Defectives under supervision should be encouraged to come to such clinics at regular and frequent intervals, much as consumptives now attend tuberculosis dispensaries. In connection with such clinics there should be skilled social workers who can aid the physician in many ways. Another step which might be taken is the compulsory notification by physicians of cases coming under their care.—Young, M., *Medical Officer*, June 7, 1919, 197. (*D. G.*)

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Municipal Pasteurization Plant.—In October, 1918, Tarboro, North Carolina, established a milk pasteurization plant at a cost of approximately thirteen hundred dollars, including delivery facilities. This plant has proven a practical means for insuring a pure milk supply and has not only proved self-supporting but has yielded a certain amount of revenue. Milk is purchased at twelve cents a quart and delivered to customers for seventeen cents. The sale of non-pasteurized milk is prevented by the terms of the ordinance establishing the municipal pasteurizing plant. (*M. T.*)

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Nativity of Parents as a Factor in Infant Welfare Campaigns.—From an analysis of the infant deaths in New York State for 1916, P. R. Eastman concludes that the infant death rate among children born of native mothers was 87 per 1000 births as compared to a rate of 108.4 for children born of foreign mothers. But the infant death rate for children under 1 month was 47.4 for those born of native mothers as opposed to 45.2 for those born of foreign mothers. About three fourths of the infant deaths under 1 month are due to prenatal causes. It is therefore evident that in planning an infant welfare campaign, the nativity of the mother must be taken into consideration. If the mother is a native born special emphasis should be placed on prenatal education, and the dangers of alcoholism and venereal disease. If the mother is of foreign origin, greater emphasis should be placed on proper feeding, on the proper care of the infant and the improvement of sanitary conditions in the home. Where an unfavorable environment exists, as is usually the case in the homes of mothers of foreign origin, deaths from communicable, respiratory and gastro-intestinal disease are abundant.—Editorial, *Journal* A. M. A., May 24, 1919. (*M. P. H.*)

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Proposed Standards for Protecting Maternity.—At the Children's Bureau Conference on Child Welfare Standards held in Washington, May 5–8, the following standards for protecting maternity were adopted tentatively. It is urged that prenatal centers be provided for the care of cases not receiving attention by private physicians. Adequate dental and venereal disease clinics should also be provided. Sufficient maternity hospitals or maternity wards should be furnished. All midwives should be trained, licensed and supervised. Physicians and public health nurses should supervise all household attendants. The public should be educated to the problems of maternal and infant mortality and their solution. Births should be reported within three days. Infant blindness should be prevented by proper treatment at birth. Children's health centers should be established for the education of the mother in the care and feeding of children during the pre-school age. This work should be done by public health nurses. One public health nurse should be appointed for every 2,000 people in the population. Dental clinics, eye, ear, nose and throat clinics, and venereal disease clinics should be established for treating defects and disease in children. Adequate facilities for treating children in hospitals should be provided. All child caring institutions should be licensed and supervised. General educational work in the prevention of communicable diseases should also be conducted.—*The Survey*, May 17, 1919. (*M. P. H.*)

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Bacillus Influenzæ in Throats and Saliva.—In an investigation on the bacteriology of influenza the authors cultivated *B. influenzæ* from the mouths of 93 per cent of uncomplicated and complicated cases of influenza. It was also present in the mouths of 43 per cent of normal individuals. The types of pneumococci found associated with the complicating bronchopneumonias of influenza were the types usually found in normal mouths.—I. W. Pritchett and E. G. Stillman, *Jour. of Exp. Med.* XXIX, No. 3, *Jour. A. M. A.*, 72, 895 (1919). (*D. G.*)

German Experience with Typhoid Fever.—In the course of an intensive campaign for the control of typhoid fever which has been indigenous and widely spread in southwestern Germany for several generations the following classical observations have been made. (Extracts from official reports.)

Origin of New Cases of Typhoid Fever.

During the campaign a special effort was made to determine the exact or probable origin of new cases of typhoid fever. In the whole area, during seven years, 10,149 cases were reported and the source of the virus was successfully determined in 5889, or 58.2 per cent of the whole. But there was considerable variation in the percentage of successful determinations at the different institutes, one laboratory succeeding in tracing the origin in 77 per cent of cases, another laboratory in only 30 per cent. This variation is due, partly at least, to differences in the opinion of individual observers as to what constitutes 'proved origin.'

It is worth while quoting the report that in the above 5,889 cases, infection was reported as caused by

1.	Contact (with cases or carriers) in	4,202 cases, or 71 p.c.
2.	Water	399 cases
3.	Milk	309 cases
4.	Food	141 cases
5.	Dirty linen	39 cases
6.	Nursing	108 cases
7.	Soil	5 cases
8.	Manure and privy vaults	26 cases
9.	Other possibilities	25 cases
10.	Laboratory infections	11 cases
11.	Teachers to pupils	10 cases
12.	Unclassified cases	614 cases

It is evident that this table emphasizes the importance of the rôle of contact in the spread of typhoid fever.—A. E. F. Office of Chief Surgeon, *Weekly Bulletin*, No. 58. (*D. G.*)

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Health Education for Men Overseas.—The National War Work Council of the Y. M. C. A. has been entrusted with the education of soldiers of the A. E. F. in Europe. The division of civics of this organization is in charge of Mr. John A. Kingsbury. One bureau in the division of civics is that of health education. The theme health education is to be presented by eight traveling exhibits and a corps of approximately thirty-five lecturers. The chief of the bureau is Lieut.-Col. W. F. Snow, M. C., U. S. A., who is assisted by Dr. W. W. Peter. The lecturers are to be chiefly army medical officers detailed for this purpose from the medical corps of the A. E. F. Work in this country is directed by Prof. Samuel M. Lindsay. The exhibits have been assembled by Dr. W. A. Evans, representing the American Public Health Association.

The exhibit material already shipped consists of 816 wall panels, 1,600 slides, 48 reels, 2,000,000 leaflets and 300,000 booklets and eight stereomotorgraphs. Additional printed matter will be available as it becomes necessary. This exhibit material was gathered by twelve national health societies acting in coöperation, each society being assigned one theme and held responsible for the proper presentation of that theme.—*Social Hygiene Monthly*, March, 1919. (*D. G.*)

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Control of Infectious Diseases in Hospitals.—What may be accomplished by a careful control of infectious diseases is brought out in a recent report by Dr. G. H. Weaver, on the work of the Durand Hospital for Infectious Diseases. During five years there were only 23 cases of cross or double infections out of 2,817 patients admitted, or 0.8 per cent of the admissions. In an effort to prevent secondary infections entirely, each patient is isolated in a separate room until the incubation period for extramural infection has passed. Such procedure is necessarily expensive, but the cost is offset by the shorter time of hospital care and by the elimination of severe, and sometimes fatal, results that follow double infections.

After a study of the various methods of ridding diphtheria carriers of their bacilli, it has been found that the removal of the tonsils is practically always followed by prompt disappearance of the bacilli.

In a study of the development of infections among nurses and attendants, it was found that certain infections must be attributed to mouth spray. For this reason, gauze masks have been continuously used since 1916, and it is noted that good results have been achieved in the protection of nurses and attendants by this device.—*Jour. A. M. A.*, Aug. 2, 1919, 359. (*D. G.*)

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Graphic Representation of Facts.—Very frequently health officers, engineers, physicians, social workers and almost every type of executive, finds it necessary to represent facts graphically. This ability is now within the easy reach of everybody, inasmuch as the task has been greatly simplified by the manufacture of articles designed especially for this purpose. There are colored glass-head pins, beads and pins, numbered glass pins, glass pins to write on, colored celluloid flags, mechanical bar charts with movable tape, special charting paper, special maps, and other important aids for demonstrating facts graphically. Health officers, and in particular, health educators, should be thoroughly acquainted with all the available facilities that can be placed at their disposal to aid them in making statistics or health principles more clear.—Gardner T. Swarts, Jr., *American City*, July, 1919. (*M. P. H.*)

Course in Housing at Cincinnati.—The University of Cincinnati has planned a comprehensive course in this specialty. It has been arranged by the new department of Industrial Medicine and Public Hygiene at the Medical College in coöperation with the Cincinnati Better Housing League. The course is to include twenty lectures covering every important phase of the subject from the history and growth of the garden city movement to the house from the point of view of the real estate agent. Legislation, industrial housing and coöperative housing will be among the subjects to be treated by speakers competent to discuss their subjects. In addition to the lectures there is reading and assigned field work. The course begins in October, and the lectures will be open not only to the students registered for the course but to the general public.

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Production of Tuberculosis by Sputum Droplets.—Twenty healthy guinea-pigs were kept in an atmosphere saturated with a spray consisting of a solution of tuberculosis sputum in sterile water in the proportion of about 1 to 100, for about five minutes. The pigs were then removed, and the mouth and nose thoroughly exposed and swabbed with alcohol. They were then given a complete bath in a 1 : 5,000 solution of mercuric chlorid. This process was repeated at irregular intervals, usually about seven days, over a period of from six to nine weeks. At the end of this time the pigs were etherized and examined. Rogers found that such an exposure of the nasal passages of guinea-pigs to sprays of finely divided particles of sputum invariably resulted in the development of pulmonary tuberculosis. Other viscera were generally involved, but less uniformly; the mesenteric glands were involved in only 10 per cent of the cases. On the basis of these findings, Rogers believes that the probability of bacilli having entered the esophagus and having been swallowed and absorbed from the intestinal mucosa can practically be discarded. The cervical glands showed tuberculosis changes in 60 per cent of the cases, and the fact cannot be overlooked that the infection might have entered through the nasal mucous membrane.—Rogers, J. B., *Amer. Rev. of Tuberculosis*, June, 1919, 238. (*D. G.*)

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Public Health Nurses' Association Formed in Oklahoma.—As a result of the state conference of public health nurses, called under the auspices of the Oklahoma Tuberculosis Association, in Oklahoma City, on July 11 and 12, the Oklahoma Public Health Nurses' Association was formed. Twenty-two public health nurses from all parts of the state attended the conference. The following topics were discussed: "The State Tuberculosis Association and the Public Health Program in Oklahoma," by Jules Schevitz; and "Important Factors in the Modern Public Health Movement and the Part Played by the Public Health Nurse," by M. P. Horowitz. W. S. Norman spoke on the exhibit, Walter M. Harrison on the newspaper, and the nurses recounted some personal experiences. In the evening of July 11, L. J. Moorwan spoke on the "Essential Factors in the Management of the Tuberculous Patient." On July 12, there was a round-table discussion of "Public Health Nursing in Oklahoma." This was followed by a talk on the "Function of the State Health Department Laboratory in the Protection of the Public Health."

(*M. P. H.*)

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Prevention of Droplet Infection by Face Mask.—Experiments made by the author demonstrated that gauze will remove bacteria from the air when carried in a moist spray. The efficiency of the gauze as a filter is in direct ratio to the fineness of the mesh and the number of layers used. As a result of these studies the masks used in the Durand Hospital have been made of three layers of gauze with a mesh of 44 by 40. These masks have been used not only by nurses but by physicians in their work while taking cultures from throats, doing intubations, and examining chests. Masks have also been placed over the faces of mothers while nursing their babies, when either one has been infected by diphtheria or has been a diphtheria carrier. There has been considerable reduction in cases of rhinitis, tonsilitis and pharyngitis among the nurses since masks have been worn.—Weaver, G. H., *Jour. Infect. Dis.*, March, 1919, 218; *Jour. A. M. A.*, 72,962. (*D. G.*)

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The Health of School Children and the War.—In his latest report, Sir George Newman, chief medical officer for the Board of Education of England, referring to the question of the influence of war conditions on the health of school children, indicates that school medical officers throughout the country have been apprehensive that certain social conditions arising from the war would prove deleterious to the health of children. Among such conditions are food rationing, including restriction of fat and sugar, the high price of food, and the lessening of parental control. More or less general inquiries have been made, and it is satisfactory to find that there is little evidence of any ground for the misgivings in regard to food. In London, as the result of a special inquiry into the matter, it was found that the percentage of children in poorly nourished condition in the third term of 1917 was considerably less than half the percentage found in 1913, the year before the war.—*Medical Officer*, April 26, 1919. (*D. G.*)

STATE HEALTH NOTES—LEGISLATION.

California.—The city of Sacramento has taken action against the indiscriminate distribution of remedies within city limits. The ordinance, which is designated as No. 849 reads thus:

WHEREAS, the indiscriminate, free distribution of remedies, nostrums, proprietary medicines, and of matter purporting to be curative agencies, many of which contain poison or other ingredients deleterious to health, and which frequently come into possession of young children and of ignorant persons who do not know how to properly make use of the same, constitutes a menace to life and a danger to health. Therefore

The Board of Trustees of the city of Sacramento ordain as follows:

Section 1. It shall be unlawful for any person to give away or otherwise distribute free of charge, except when placed in the hands of adult persons, within the corporate limits of the city of Sacramento, any sample package, parcel, bottle, box or any other quantity of any remedy, nostrum, proprietary medicine or other materials of alleged medicinal character, or purporting to be a curative agency, or to throw, place, deposit, or leave the same or cause the same to be thrown, placed, deposited or left in any house, hall-way, entrance way, area, yard, or lot, or on any doorstep or porch, or in any street, alley, court, square, or public place except with an adult person in said city of Sacramento.

Sections 2 and 3 provide for punishment, a fine not exceeding $5, or six months' imprisonment, one or both, and declare that the ordinance shall take effect on passage.

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Georgia.—There is a bill before the legislature entitled, "An act to provide a basis of discriminating between the functions of the educational authorities and the health authorities in the public schools of the state; to insure better coöperation of the two forces in instances where their duties coincide or diverge; to define the duties of the school authorities in respect to the school children under their care; to make provision for courses of physical education and training in all public, elementary and secondary schools of the state; to authorize the appointment of a state supervisor of physical education and district, county or local supervisors, and for other purposes."

The preamble calls attention to the fact of the deficiency in physical condition revealed by the draft, which in Georgia showed that approximately one third of the young men were unfit for military duty, and to the further fact that such conditions might have been prevented or remedied by proper care or handling in the schools.

The act provides for a shared responsibility between the public school authorities and the health authorities over the symmetrical health development of the children in the schools. The division of responsibility in general is that indicated by the phrases, "physical education" for the schools and "communicable disease control" for the health authorities. One is a training and the other a restraining function. In addition to these responsibilities, it shall be the duty of the school authorities to be on the alert for obvious defects and diseases, communicable or otherwise, that may be amenable to medical or surgical treatment, and to report all such cases to the parents and to the properly constituted health and medical authorities. In like manner it shall be the duty of the legally constituted health authorities, in addition to the periodical medical inspection of the school premises (already provided for in the Ellis Health Law), to respond to the fullest extent possible to appeals of the school authorities for advice.

Section II defines the term, physical education, to include both physical training proper and physical environment. Physical training is to comprise class instruction in physiology and hygiene, organized and purpose play, drills, calisthenic and athletic exercises, and the inculcation of health habits. Physical environment is to be understood to embrace school grounds and buildings. With reference to the grounds, proper facilities for play are necessary together with a pure water supply, and sanitary sewage system. With reference to buildings, proper seating, heating, lighting, ventilation and esthetic arrangements are required.

Section III, IV, and V, outline the duties of the state commissioner of education, with the advice of expert physical and other educators and the state health commissioner. He shall outline the courses, publish a syllabus for distribution, set forth the qualifications of instructors, and be authorized to administer the programs and activities provided for by the act.

Section VI provides for the appointment of local supervisors of physical education by and with the suggestion and direction of the state commissioner of education.

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Illinois.—The appropriations made by the 51st General Assembly for the uses of the State Department of Public Health for the biennium beginning July 1, 1919, amounted to $786,000. The total appropriation for the department in 1914 was but $50,000.

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North Carolina.—Every teacher in North Carolina schools this year must hold a certificate from a reputable physician stating that he or she has not

an open or active infectious stage of tuberculosis, or any other contagious disease. This is in accordance with an act of the General Assembly of 1919 that was presented by Representative Turner of Mitchell county.

The law provides that the teacher must secure such certificate each year before assuming his or her duties, the examination to be made without charge by the county physician. The law is entitled "an act to prevent public school teachers from infecting their pupils with tuberculosis."

While primarily intended to protect the school children from infection through close association with teachers who might be infected the operation of the law is proving already of great benefit to the teachers themselves. Examinations are now being conducted in a number of counties by physicians preparatory to issuing certificates of health, and these are disclosing conditions that those examined had never suspected.

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Ohio.—Every hospital and dispensary in Ohio must register immediately with the State Department of Health, to comply with the terms of a law passed by the legislature in March. The act requiring such registration, and also requiring annual reports from all hospitals and dispensaries, went into effect June 25.

The hospital registration and reporting will serve as the basis of a survey of the state's hospital facilities, which was also provided for by the legislature at the present session. A division of hospitals has been created in the State Department of Health, to make this survey.

The resolution authorizing the survey declared that the influenza epidemic had demonstrated the danger of the shortage of hospital accommodations in certain parts of the state and the need for a study to determine where hospital development was most necessary.

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Pennsylvania.—Act No. 191 of the General Assembly, approved by the governor on June 4, provides for the appointment by the governor by and with the consent of the Senate, of a deputy commissioner of health, who shall be a graduate of a legally constituted medical college, and a physician of at least ten years' professional experience. It shall be his duty to perform such duties heretofore conferred by law upon the commissioner of health as the commissioner may specify or direct. He shall perform the duties of commissioner of health whenever that official is absent or incapacitated or whenever a vacancy occurs in that office. The salary is $6,500 per year and expenses actually and necessarily incurred in the performance of his official duties.

Act No. 198, approved June 5, is an amendment of the act of June 18, 1895, being entitled, "An act to provide for the more effectual protection of the public health in the several municipalities of this Commonwealth." Section 12, which is amended, is made more broad and comprehensive. It has reference to the vaccination of school children. It prescribes that it shall be the duty of all school directors, superintendents, principals or other persons in charge of any public, private, parochial, or other school, to refuse the admission of any child to any of said schools, excepting upon a certificate signed by a physician, setting forth that such child has been vaccinated, and that a subsequent examination reveals a resulting cicatrix indicating that vaccination has been properly performed, or that it has previously had smallpox. Certificates of vaccination must accord with the rules and regulations of the commissioner of health.

Section 21, which had already been amended in 1903, is the penalty clause of the act. The change consists practically in removing from the section the limiting phrases that required action to be begun against any violator of the act within sixty days from the commission of the offense, and not later.

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Wisconsin.—*Progressive legislation along the lines of Sanitary Engineering.*—In a bill recently passed by the legislature and signed by the governor, correlating to a certain extent previous enactments, broad powers have been delegated to the State Board of Health in regard to water and ice supply matters, water purification, sewage treatment and disposal, industrial waste treatment and stream pollution matters. The act includes some interesting features, among them being the clause delegating to the state health officer authority and power to act as and for the State Board of Health in enforcing and carrying out the provisions of the act in all matters, except, in the formulation and adoption of rules. The act carries an annual appropriation of $10,000.

Section 2 of the bill is devoted to defining the meaning of certain terms. All bodies of ground or surface water, whether natural or artificial, are included under "waters of the state," while the term "sewage" is to include industrial wastes.

General supervision and control over waters and ice in so far as their sanitary and physical condition affect the public health or comfort are provided for giving the board the power to make and enforce rules and regulations, and to order the necessary changes or additions to correct and prevent pollution. The act makes it mandatory upon the Board to investigate all sources of water or ice

supply and all water and sewerage systems and sewage or refuse disposal plants and to keep complete records of all such investigations. Adequate power is also delegated to compel the operation of such systems and plants in a manner which shall protect health and comfort, or to order their alteration, extension or replacement by suitable structures when deemed necessary. Experiments relating to water purification and treatment of sewage or refuse may be conducted.

There is a provision with reference to the submission of plans, whether of proposed work or of equipment already in existence.

Adequate power to protect public health is afforded by delegating authority to the board to issue orders to secure such operating results, relative to water, sewage and industrial waste systems, as may be prescribed, and if the results directed to be obtained within the time specified be not produced, the board may order such changes in a system as may be deemed necessary to safeguard health and comfort.

Every approval given by the board under the act may be subject to modification and change by the board after due notice. And in all matters, except in formulation and adoption of rules and regulations, the state health officer is empowered to act as and for the board in enforcing and carrying out the provisions of the act.

There is a provision for appeal from a decision of the board, and a time limit of twenty days after judgment is fixed when compliance must be initiated, and penalties are provided.

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Another bill adding three sections to the previously considered act has also been passed by the legislature and recently signed by the governor. This latter act provides that the State Board of Health may require the sewerage system, or sewage or refuse disposal plant of any town, village or city to be so planned and constructed that it may be connected with the sewerage system or sewage or disposal plant of any town, village or city, so that the water supply and health of any community in the same general drainage district may be properly protected, and further provides that after a hearing the board may, upon due notice to all municipalities involved, order the proper connections to be made. Provisions as to rates for service are also included.

In connection with water purification, the State Sanitary Engineering Division anticipated legislation of this character by inaugurating a system of tabulation sheets at every purification plant, these sheets being filed with the division every month. It is the intention further to conduct for each plant at least one efficiency run every year. (*E. J. Tully*) State Sanitary Engineer.

STATE NOTES—GENERAL.

Canada.—Lieut.-Col. John A. Amyot of Toronto, Canada, has been appointed deputy minister of the new department of health recently created in Canada. Doctor Amyot has many warm personal friends in this country as well as in Canada.

In speaking of him Dr. H. W. Hill of Minneapolis, conversant as he is with matters Canadian, thus outlines his merits: "His professional qualifications are of the highest. We take this opportunity of extending to him our best wishes for his success.

"Canada is to be congratulated on its splendid choice of a deputy minister of health and for their achievement in establishing a department of health as a part of their government. We can only hope that before many years the United States will see fit to follow Canada's example and inaugurate a department of health, as the department of agriculture and other departments, to represent the interests of the people in the Cabinet of the United States."

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California.—The Southwestern Tuberculosis Conference will be held at the Hotel Virginia, Long Beach, Cal., October 1–3, 1919, under the auspices of the National Tuberculosis Association.

This conference includes the states of Arizona, California, Colorado, Kansas, New Mexico, Oklahoma and Texas. The purpose of the meeting is to afford the opportunity for an exchange of ideas regarding the various public health and tuberculosis problems encountered in these states and how they can best be met.

This year's officers of the Conference are: President, Dr. Robert A. Peers, Colfax, Cal.; vice-presidents, Arizona, Dr. Jeremiah Metzger, Tuscons California, Dr. C. C. Browning, Los Angeles; Colorado, Dr. Gerald B. Webb, Colorado Springs; Kansas, Dr. S. J. Crumbine, Topeka; New Mexico, Mrs. A. Otero-Warren, Santa Fé; Oklahoma, Mr. E. K. Gaylord, Oklahoma City; Texas, Mr. J. D. Harper, Dallas; secretary, Mrs. E. L. M. Tate-Thompson, Fresno, Cal.; chairman of Committee on Program and Arrangements, John Tombs, Albuquerque, N. M.

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Delaware.—Two health activities of the state of Delaware, together with three other public departments, are in coöperation in a clearing house for publicity and other purposes.

At the close of the recent session of the Delaware legislature, when a new state system of education went in effect, when the State Board of Health was reorganized in its personnel and a special health commissioner employed through the courtesy of a private organization, it was decided that these two public boards and several other state commissions

might very well economize on office force, office space, publicity expenditures, etc., by establishing a central clearing house. There were really two purposes in the final coöperative plan for five state departments. The first is the one just mentioned, the second is an effort to demonstrate the effectiveness and efficiency of a more simplified form of government under which all departments of public welfare would be coördinated. In addition to the publicity, the coöperation of these present commissions through a committee consisting of the chairman of each and the clearing house officials, enables them to prevent duplication and overlapping in their work and also to put before the people of the state a definite program of state development along all these lines.

As the State Program Committee was first formed, it included the State Board of Health, the State Board of Education, the Reconstruction Commission, and the Survey Commission. (The purpose of the latter is to adapt government surveys already made to local conditions.) The State Highway Department is just coming into the State Program.

These five official bodies will keep the public informed of their activities through the clearing house, and the clearing house will conduct both official publicity, and propaganda to promote the desirable legislation at the next session of the legislature, and will endeavor by coöperation with private organizations to coördinate official and volunteer work in such a way that all civic effort in the state may be directed toward one end, the development of Delaware into a model state in governmental efficiency, industrial and agricultural soundness, education, health, transportation and the allied matters such as Americanization, recreation, housing, child protection, etc.

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Florida.—Eight district health officers have been appointed. A hospital for crippled children has been opened. Hon. Joe L. Earman has been appointed president of the State Board of Health and Ralph N. Greene, M. D., state health officer.

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Illinois.—In conjunction with the War Civics Committee, appointed by the War Department, the State Department of Public Health, through its Division of Surveys and Rural Hygiene is conducting a thorough health survey of the city of East St. Louis. The field work is being carried out by Paul L. Skoog, chief of the Division of Surveys, with the coöperation of the Divisions of Child Hygiene and Public Health Nursing, Tuberculosis, Sanitation, Vital Statistics and Communicable Diseases.

A special survey of tuberculosis will be carried out by the Division of Tuberculosis, in conjunction with the National Tuberculosis Association which has made a financial grant for the purpose.

East St. Louis is an industrial city presenting many complex problems due to peculiar sanitary conditions, to large numbers of Negroes and residents of foreign birth, and to the absentee landlord. The city has grown more rapidly than other any city in Illinois, having increased from 58,000 to 92,000 population within the past eight years. On account of the complex conditions existing the War Civics Committee was created and was financed by a fund of $200,000, raised by the residents of the community. This is the sixth extensive municipal health survey carried out by the State Department of Health. On the completion of the survey in East St. Louis, a similar survey will be made in the city of Alton.

Through the enactment of laws and additional appropriations for the State Department of Public Health, made by the last General Assembly, the following additions have been made to the staff of the department: Chief of Division of Biologic and Research Laboratories; assistant bacteriologist in the newly created Division of Biologic and Research Laboratories; assistant epidemiologist for the Division of Communicable Diseases; medical assistant to Child Hygiene and Public Health Nursing; chief of Division of Public Health Inspection; assistant engineer of Division of Sanitation; supervising nurse for Division of Tuberculosis. In the newly created Division of Social Hygiene the following: supervisor of clinics and hospitals; supervisor of education of men; supervisor of education of women; supervisor of social service and supervisor of industrial work.

All divisions and particularly the Division of Vital Statistics have been granted material increase in clerical and operative forces.

The State Department of Public Health has recently opened a venereal disease clinic in connection with the venereal disease ward in the Decatur and Macon County hospitals. Dr. R. L. Morris has been named director of this clinic and Dr. I. H. Neece, city health officer, has been appointed assistant director.

The State Department of Public Health has recently established a motion picture service through which medical societies are supplied with motion picture machines and operators, either for their own meetings or for meetings held under their auspices.

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Louisiana.—Dr. F. E. Harrington, United States Public Health Service, who has been assigned to rural sanitation work in Texas and Louisiana, has just completed a successful campaign in Slidell, La.

Dr. William Edler, scientific assistant, United States Public Health Service, is in charge of the Bureau of Venereal Diseases of the Louisiana State Board of Health.

Baton Rouge is making an effort to eradicate the mosquito. Sanitary Engineer J. A. Leprince, U. S. P. H. S., and Assistant Sanitary Engineer H. C. Woodfall (Reserve) have been assigned to assist Dr. P. H. Jones, city health officer, in the campaign.

In New Orleans, the Fourteenth Ward, under the direction of Mr. W. S. Penick, in coöperation with Dr. W. H. Robin, superintendent of public health, has undertaken a mosquito eradication movement.

It is hoped that these intensive efforts may extend to other sections of the state.

Dr. Maud Loeber, A. B., M. A., of New Orleans, has been associated with the Bureau of Child Hygiene of the State Board of Health. Dr. Loeber is instructor in pediatrics of Tulane University and in charge of clinics for children in Touro Infirmary and Charity Hospital.

The Louisiana State Board of Health has now five laboratories, three of them outside of the city of New Orleans. There are clinics for the treatment of venereal disease.

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Minnesota.—The total number of treatments administered in the venereal disease clinics, under the control of the State Board of Health, during the month of June, was 1,235. These treatments were given to a total of 526 patients.

The summary of the case reporting to the Division of Venereal Diseases for the eleven months elapsing from the time when these reports were made compulsory, August 1, 1918, to the close of the fiscal year, July 1, 1919, was 6,770.

The Division of Venereal Diseases, which was formerly located at the capitol in St. Paul, is now housed on the University Campus in Minneapolis in the Pathology Building, along with the Division of Preventable Diseases and the Division of Sanitation. The Division of Records, the Division of Nursing, and the Division of Vital Statistics, together with the executive office, will remain in the capitol, St. Paul. The distance between these two offices of the same department is about eight miles.

The Minnesota State Board of Health has established its own Wassermann laboratory. The technician in charge is Mr. Ralph M. Sperry, formerly of Philadelphia. This particular form of laboratory service has been available to the physicians of Minnesota through the State Board of Health for the past year and a half, but thus far has been done under contract in a local commercial clinical laboratory.

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Massachusetts.—The State Department of Health is to celebrate on September 15 the fiftieth anniversary of its foundation. For one of the features a public meeting is proposed and it is expected that Sir Arthur Newsholme will speak on the public health work in England during the corresponding period.

J. A. Keenan, M. D., has been appointed acting assistant district health officer and will be stationed in Berkshire County.

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Montana.—The annual conference of health officials was held at Missoula July 7 and 8, with a registration of 116. In addition to the papers by local talent, addresses were presented by visiting public health authorities, Dr. W. A. Evans of Chicago; Dr. J. S. Crumbine, secretary of the Kansas State Board of Health; Capt. Millard Knowlton of the U. S. P. H. S.; and J. S. Abbott of the U. S. Bureau of Chemistry.

An important result of the conference was the formation of the Montana Public Health Association, uniting all the health organizations of the state. The plan of the combination is for each association to constitute a separate section of the new association with its own program, but there will be two general sessions at the same time and place. It is in effect a federation of the state health associations.

The following is the list of officers of the Montana Public Health Association: President, Prof. W. M. Cobleigh, Bozeman; vice-president, Dr. H. T. Rhodes, Choteau; secretary, Dr. W. F. Coggswell, Helena; and treasurer, Dr. W. A. Russell, Hardin. The vice-presidents of the sections are the following: Public Health Administration, Dr. L. W. Allard, Billings; Tuberculosis, Dr. Caroline McGill, Butte; Sanitation and Water Works, Harry Gerharz, Helena; Child Welfare, Mrs. H. B. Farnsworth, Missoula; Industrial Hygiene, Dr. P. H. McCarthy, Butte; Personal Hygiene, Dr. E. G. Steele, Plentywood.

The annual meeting of 1920 will be held at Helena.

The 1919 meeting of the Montana State Medical Society was held in Missoula immediately following that of the health officers. Public health was a feature of many of the papers of the regular medical program.

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New Jersey.—An indictment the last of July charging Mr. and Mrs. Andrew Walker with manslaughter in connection with the death of their eight-year-old daughter from diphtheria in Newark, N. J., will open an important legal case. The Walkers are Christian Scientists, as was also their daughter and during her ten-day sickness she was given no medical treatment. The court in his charge to the grand jury last May declared that "Religions of any character, if they conflict with

the plain obligation of the law, constitute no legal defense."

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New York.—Exceptionally complete reports have been received at the State Department of Health this year covering annual inspections by local authorities to determine violations of rules and regulations for the protection of public water supplies. To date all but two of the eighty municipalities where such rules are in force have filed reports and the further action necessary to abate the violations has been taken by the Engineering Division.

Three cases of human anthrax, two of which proved fatal, have occurred in the vicinity of Randolph (Cattaraugus County) within the last few weeks. The health officer, Dr. C. N. Snover, has published a statement warning owners of livestock of the presence of the disease and instructing them how to protect themselves from infection and how to dispose properly of the carcasses of infected animals.

At a reunion of the health officers who have taken the course for health officers at Syracuse University under the direction of Sanitary Supervisor Frederick W. Sears, M. D., it was voted to organize under the name of the Central New York Public Health Association. Sixty-two graduates who were present became charter members of the new organization.

The work of investigating the equipment, operation and sanitary condition of milk pasteurizing plants which is being carried on by the Engineering Division has been extended to cover all such plants throughout the state, irrespective of whether or not these plants ship their output in whole or in part to New York City. Heretofore the investigation has not included plants shipping to New York City on the ground that the city department of health maintains inspection of such plants, but it is found that the New York City authorities are compelled at times to prohibit shipment to the city from various plants and the product is then sold locally, thus making it necessary that state supervision be maintained in the case of all plants in the state.

Investigations have recently been made, by the engineering division, of sanitary conditions at Land Army Camps located at Selkirk, Peru, Athens, Morton, Fairport, Port Washington, Middletown, Hector, Cold Spring Habor, Bridgehampton, Sodus (2) and Bedford.

Edward Goodwin, M. D., sanitary supervisor, has been carrying on this season a campaign of education among the Jewish farmers and boarding and rooming houses in Ulster and Sullivan counties. The instructions have included methods of improving wells and of building sanitary tops and housings for them, together with surveys for good water supplies. Methods of caring for garbage have been taken up, the sanitary privy has been demonstrated and other matters which have in consideration the health of the summer boarder and of the rural dweller himself. Meetings in the larger centers, like Ellenville, have been arranged. For these literature in English and Yiddish has been prepared in the shape of posters and pamphlets. A part of the good work has been in the line of addresses to school children in the schoolhouses. These have for their text the large subject of cleanliness and some of the details which include the danger of the fly, the need of pure water, and the like. In other places the people of a small community are assembled on the lawn in the open air, with the families of the owners, when possible, and talks on sanitation are given to them.

Doctor Goodwin emphasizes four improvements that it is possible to make in almost any rural community: 1, a sanitary privy; 2, protection of the water supply; 3, care of kitchen wastes; and 4, constant warfare against the fly.

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North Carolina.—In the endeavor to safeguard the health of summer vacationists inspectors of the North Carolina State Board of Health are making official inspections of resort hotels in the western portion of the state. The effort will be made to reach all points in the mountains, and to examine carefully all places catering to summer tourists.

Acting under an act of the General Assembly of 1917, the State Board of Health adopted rules and regulations for the sanitary management of hotels in the state. Provision is made for an inspection at least once a year, the place inspected to be scored in accordance with definite rules.

In connection with the inspection of the regular hotels the railroad eating places that receive the patronage of such a large portion of the traveling public will also be examined.

Greatly increased activity in the installation and extension of sewer systems by the cities and towns of the state is indicated in plans for approval being submitted to the Engineering Department of the State Board of Health.

Two causes are assigned for the unusual amount of work of this character that is now being undertaken in many sections of the state. During the four years of the great war both materials and labor were so scarce that practically all kinds of public improvements were held in abeyance. There is a rush now to catch up with the time that has been lost. Furthermore, the state-wide privy law enacted by the last legislature has caused many municipalities to either begin the installation of sewer systems or to extend those already installed so as to serve larger portions of the population.

Steps for a plan for active coöperation between the North Carolina State Board of Health and the American Red Cross Society in public health work were taken at a recent special meeting of the Board. Looking toward this end the following resolution was unanimously adopted.

"*Resolved*, That the North Carolina State Board of Health officially requests the American Red Cross to send a representative committee, with power to act, to Raleigh at an early date to confer with a committee of the State Board of Health for the purpose of considering and, if possible, adopting a plan of coöperation in public health work for North Carolina between this state and the American Red Cross."

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North Dakota.—At the state fair at Bismarck, the exhibits tending to the education of the people in matters of health and hygiene have this year been an important feature. There was a day nursery, "where the little bundles of possibilities" were cared for. The fittings were an object lesson and the trained nurses, well-springs of information. This feature was cared for by the University Community House. The Public Health Laboratory exhibited specimens of an educational nature, showing the people what is meant by bacteriological work, and maintained a lecturer and demonstrator during the time of the fair. The Agricultural College presented a health program in country sanitation, personal hygiene, home nursing, good food, together with home conveniences that help make the family life less laborious and irksome. The City Health Department looked after the sanitary condition of the grounds and made daily inspections of the places where food was prepared or served; there was a Red Cross hospital, an exhibit by the North Dakota Anti-Tuberculosis Association, while the showings of the boy and girl scout organizations were features in the presentation of the right idea in living.

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Ohio.—The Hughes Act took effect Sunday, August 10. Many county organization meetings were held immediately thereafter. The State Department of Health was represented at these meetings by members of its staff of district supervisors, who for several weeks have been conferring with local officials in various parts of the state regarding the reorganization.

At their preliminary meeting the mayors and chairmen organized themselves into a district advisory council and elected a five-member board of health. The terms of these five members of the original board will vary from one to five years, and each year after the organization one member will be elected for a five-year term, making the board a permanent body, with only one member's term expiring each year. Two of the five members must be physicians, one a farmer and one attorney. A municipality with one fifth or more of the district population is entitled to one member of the board of health.

Ohio threw away $50,000 in July on typhoid fever, perhaps the most readily preventable of all diseases. This estimate by the State Department of Health is based on a probable total of 400 cases of typhoid in July. The case reports sent in by physicians number 250, but these are admittedly incomplete.

"These 400 cases," said the department, "represent a wage loss of probably $75 each, or $30,000, as each patient was ill about four weeks. This loss was borne either by the patient, whose wages stopped during his sickness, or by his employer, who continues to pay out wages for services which he did not receive. The expense for medical and nursing care would average $50 per case, or $20,000 more.

"Practically all this loss could have been prevented if every community in Ohio had paid proper attention to sanitation. The expenditure of much less money than was lost would practically have prevented the loss."

Ohio's health activities for the control of venereal diseases have been placed on a more efficient basis by the removal of the Bureau of Venereal Diseases of the State Department of Health from Cleveland to the department's headquarters in Columbus. The work of the bureau will be more closely coördinated with the other activities of the department than has been possible in the past.

The bureau was established at Cleveland a year and one-half ago, when the call of the War Department for anti-venereal disease work found Ohio without funds for the purpose. Dr. H. N. Cole at that time assumed charge of the bureau, serving without compensation until Federal funds were apportioned to Ohio for carrying out the program. Doctor Cole now retires from active direction of the bureau but continues to serve in a consulting capacity.

At a symposium on "The Negro Health Problem" in Cincinnati on June 27, 1919, William H. Peters, M. D., outlined the situation in his city in such fashion that a digest of his remarks may be of value to other communities having similar problems.

"More than one half of Cincinnati's Negro population," said Dr. Peters, "which is estimated at 29,551, live in three downtown congested wards.

"Those of us who are familiar with conditions under which the Negro lives, knows that he is the victim of causes which have lowered his resistance to disease and decreased his efficiency. Among the most important may be mentioned poverty, igno-

rance, bad housing, poor food, race prejudice, lack of opportunity, and dissipation."

The vital statistics for 1917 and 1918 reflect most of these causes of mortality, and furnish facts that should be a firm foundation on which to establish a definite public health program. It is evident that:

1. Cincinnati's white death rate was 15.5 per 1,000 in 1917, while the colored rate was 29.5, or almost double. In 1918 the white rate was 19.9 and the colored rate 34.5. Mr. James H. Robinson, executive secretary of the Negro Civic Welfare Committee, reports that the Negro death rate for the city has fluctuated between 28 and 34.5 during the past twenty years, and all ratios have been fairly constant.

2. More than three times as many colored people died of tuberculosis per 1,000 population.

3. The colored syphilis rate was more than five times that of the whites.

4. More than three times as many of them per 1,000 population died of pneumonia.

5. Where one white child died before birth, three colored children, in proportion to the population, met the same fate.

6. Of the colored children born alive, almost three times as many of them, per 1,000 births recorded, perish during the first year of life.

7. More than twice as many Negro children under two, in proportion to the population, die of gastro-enteritis.

8. The excess in the colored deaths of preventable causes is responsible for more than one point in the general death rate of the city.

Accepting the estimate of the Committee of One Hundred on Conservation as correct, Cincinnati's economic loss from preventable diseases among colored people is approximately $2,000,000 per annum.

"While these figures are appalling," continued Doctor Peters, "they need not deter us. On the contrary, they should give us new impetus. Cincinnati is on the threshold of a new era and, with the development of a big city program, will come bigger opportunity for the Negroes, opportunity for better jobs, better living conditions, and better health. Never in our history have we been in a better position to help the colored man. With the medical department of the Cincinnati University, the Cincinnati General Hospital, the Health Department, and all related health agencies working together it should not take us long to mobilize our forces for a strong offensive."

Doctor Peters suggests that a community health center in the midst of this population is needed. It should have a dispensary, and clinics in tuberculosis, obstetrics, medical and surgical facilities, dental clinic, division of child hygiene, bureau of venereal diseases, narcotic relief station, bureau of community nursing and social service department.

Certain elements towards such a center are already assured, while the Health Department can care for others. In fact tentative plans were shown by the speaker, and a portion of the address was directed towards interesting the generous public in the matter.

"Let us not forget that the Negro is an American citizen," said Doctor Peters in conclusion, "his demands for citizenship are the same as ours. The Negro cannot measure up to expectancy if he is not in good health. He needs our sympathy, encouragement and coöperation and, because of the pathological conditions of his group, special treatment. And those of us who are not inclined to be so generous should remember that he is living with us, that the band of contact is close, that he transmits his diseases to us, and that every dollar spent for his welfare is a dollar spent for the health and protection of the white man.

"The Negro health problem is one of the big, pressing problems of the day. It is not purely local. The local situation, however, is acute on account of abnormal migration during the war. we can't ignore the call."

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Pennsylvania.—A very interesting meeting, scheduled for Pittsburgh for September 30 to October 1, is the National First Aid and Mine Rescue Meet, to be held in connection with the dedication of the buildings of the Pittsburgh Experiment Station of the United States Bureau of Mines. These contests have national interest in view of the movement towards greater safety and efficiency in mining industries. The meet is to consist of competitive tests of teams of five men from different mining companies in fifteen or twenty states, in first aid to the injured and in the use of self-contained oxygen apparatus. Already between seventy and eighty team entries have been made for these contests.

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South Dakota.—At the July meeting of the State Board of Health and Medical Examiners a division of Medical Licensure was established with Dr. H. R. Kenaston of Bonesteel, for director.

The Division of Venereal Disease Control has recently established venereal disease clinics as follows: At Deadwood, Dr. A. S. Jackson, director, and Dr. V. R. Hodges, assistant, and at Webster, Dr. P. D. Peabody, director, M. H. Ebert, assistant.

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Utah.—Dr. E. G. Gowans has been appointed state director of health education, under the authority of a bill passed by the last legislature. The

salary of the position is $4,000 a year. Doctor Gowans has been state superintendent of public instruction.

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Wisconsin.—The State Board of Health has adopted a full set of rules, having the force of law, for the control of venereal diseases.

Wisconsin's excess of births over deaths in 1917 was 103 per cent, while the average for the birth registration area was 74.4, according to a census report recently announced. Deaths of infants under one year per 1,000 living births were 77.8 in Wisconsin as against 93.8 for the whole area. Wisconsin was one of four states to attain more than 100 per cent in the excess of births over deaths.

Milwaukee in mid-July reported six cases of infantile paralysis and one death, and the Health Department tightened the precautions to prevent an epidemic.

E. J. Tully, chemist and field sanitary engineer for the Wisconsin State Board of Health, has been transferred to the new Bureau of Sanitary Engineering under the board, which was created to deal with problems of sewage disposal and pure water and ice supplies. A chief engineer will be appointed.

Dr. C. A. Harper, state health officer, was named by the Wisconsin State Board of Health to represent that body on the Committee of Examiners for the certification to county boards of public health nurses, or public health instructors, under the new county nurse law. A. B. Cook will represent the State Department of Public Instruction on the committee, and the Association of Registered Nurses will name the third member.

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CONVENTIONS, CONFERENCES, MEETINGS.

The JOURNAL will be glad to publish the dates of prospective conventions or meetings of associations whose purposes are allied to those of the American Public Health Association.

American Public Health Association, New Orleans, La., October 27–30, 1919.

September —, Iowa Public Health Association.
September —, Syracuse, N. Y., Central New York Public Health Association, Meeting for Organization.
September 8–12, Cincinnati, O., American Dietetic Association.
September 8–12, Cincinnati, O., American Hospital Association.
September 11–13, Seattle, Wash., Health Officers' meeting.
September 15–October 26, New York, N. Y., International Conference of Women Physicians.
September 17–18, Quebec Public Health Association.
September 22–25, Harrisburg, Pa., Pennsylvania State Medical Society.
September 22–27, Chicago, Ill., Fifth National Exposition of Chemical Industries.
September 23–24, Oklahoma City, Second Annual Oklahoma State Public Health Conference.
September 24, Kearney, N. J., New Jersey Health Officers Association.
September 24–26, Indianapolis, Ind., Indiana State Medical Society.
September 29, Cleveland, O., National Safety Council.
Week of September 29, New Orleans, La., Southern Tuberculosis Conference.
September 29–30, Pittsburgh, Pa., National First Aid and Mine Rescue Meet. In connection with the dedication of the buildings of the Pittsburgh Experiment Station of the U. S. Bureau of Mines.
September 30–October 3, Albany, N. Y., New England Waterworks Association.
October —, Des Moines, Iowa, Mississippi Valley Conference on Tuberculosis.
October 1–3, Long Beach, Cal., Southwestern Tuberculosis Conference.
October 1–4, Cleveland, O., National Safety Council.
October 7–9, Springfield, Ill., Illinois Public Health Association.
October 20–24, Riverside, Cal., League of California Municipalities and Health Officers.
October 23–24, Jackson, Miss., State Health Officers' meeting.
October 27–30, New Orleans, American Public Health Association.
October 30, Boston, Massachusetts Association of Boards of Health.
November 5, Minnesota Public Health Association.
November 11–13, Asheville, N. C., Southern Medical Association.
November 11–13, Asheville, N. C., American Child Hygiene Association.
November 12–14, New Orleans, La., American Society for Municipal Improvements.
1920, January, Concord, N. H., Health Officers' meeting.
1920, May —, New Orleans, National Conference of Social Work.
1920, May 12, Washington, D. C., U. S. Pharmaceutical Conventions.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh and P. M. Holmes.

Health Work in Potteries and Printers.—The Whitley Councils sanctioned an experimental scheme for regular medical observation and research in industry. The first experiments were made in two large printing works. Conditions were materially bettered, and numerous cases of disability were helped. It was discovered that a health committee of each industry is the best means of carrying out this work. It is better for each industry to undertake its own welfare matters than to leave it entirely to any government department. Catarrh, bronchitis, and chronic cough are the most common ailments affecting the workers and it is very rare to find a large office without somebody in it suffering from a cold. It is quite possible that it can be demonstrated by experiment that economy would be effected if workers suffering in the early stages of catarrh were persuaded to stay at home until they recovered. Anæmia is very frequent among young women and handicaps their work greatly. In three large clothing factories 63 per cent of the girls were found suffering from anæmia. Much illness and fatigue is evidently due to short, hurried and scrambled meals.—*The Lancet*, London, July 5, 1919, p. 24.

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How to Start an Industrial Medical Service.—An industrial medical service first needs the momentum of popular interest and can only be obtained through direct touch with the personality of those it serves. The next point is consideration of the duties to be undertaken. These concern industrial birth, life, and death. Industrial birth is the engagement of workers; and here medical services are the chief features in the selecting and placing of workers. Industrial life is the period of employment; and here skilled medical services are of even more value and must include industrial hygiene and advice on compensation arrangements. Industrial death is the cessation of employment; and here the medical officer should inquire closely into the causation of dismissal. Such inquiry is for the medical officer what a post-mortem is to the physician. Through medical services the employer will gain in the quality and quantity of output far more than the salary he pays; the worker will benefit by improved health, happiness, and earning capacity. Two things are now needed, an increased supply of trained men and an increased demand for their services. Doctors in industrial areas all suffer from lack of knowledge of how their patients earn their livelihood. Therefore, the schools should start post-graduate courses which they may attend, and the factories should greatly enlarge the duties entrusted to physicians.—*The Lancet*, London, July 5, 1919, p. 30.

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Standards for Safe Practices in Handling Acids and Caustics.—Most manufacturing plants handle acids, caustics and alkalis in one form or another. The pamphlet takes up seventeen of the commonest of these and discusses the hazards in handling them in practically every form and relation. Chemical injuries, burns, fumes, internal poisoning, fires, and explosions are all covered, shipping and storage included. Each of the seventeen substances is given a final description regarding its hazardous properties. The pamphlet is well illustrated and is No. 25 of the "Safe Practices" series.—*National Safety Council*, Chicago. Price 25 cents, 15 p.

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Automobile Exhaust Gases as Hazards.—The authors prefer the term, "petrol-asphyxia" suggested by *The Travellers' Standard* as a good term to indicate the overpowering of persons by gasoline engine exhaust gas fumes, but it must be noted that gasoline vapors themselves cause intoxication. The intoxication is due to carbon monoxide. Exposure to an atmosphere containing only 0.20 per cent will cause a man at rest to collapse within an hour, and exposure to as little as 0.05 per cent causes headache in several hours' time. Different people are affected differently, and a man at work will be overcome much more rapidly than a man at rest. The symptoms come almost without warning, and collapse in a garage would prove fatal unless outside aid arrived very soon. Resuscitation necessitates the wide opening of doors, removal to fresh air at once, and artificial respiration without delay. Use the prone pressure or Shaefer method. This is described in detail. A tank of oxygen should be used if at hand, but dependence must be placed upon prompt artificial respiration, which should be continued without interruption until natural breathing is restored or at least three hours. Emphasis is placed on not giving any liquid by mouth until the victim is fully conscious. Gasoline vapors to be explosive must contain not less than 1.5 per cent nor more than 5.2 per cent by volume. The range of complete combustion is very narrow, between 1.5 and 2.5 per cent of gasoline vapor in the mixture prior to combustion, so that it is almost impossible to run an engine without producing carbon monoxide at times. In tests made by the authors, garage air was rendered decidedly dangerous after an automo-

bile engine had been run fifteen minutes, and such engines should not be run in a small garage unless doors and windows are wide open.—Burrell and Gauger, *Technical Paper 216, U. S. Bureau of Mines.*

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Physical Education and National Growth.—General Wood states that approximately 30 per cent of the men of military age were rejected as unfit. Of the remaining 70 per cent who were sent to the training camps, 8 per cent were rejected as unfit for military service, and this under standards much lower than those in effect in the Regular Army in time of peace. It is safe to say that 50 per cent of our men were unfit for field service in war. This is bad enough from the military standpoint, but it is even more serious from the standpoint of industrial efficiency. In the men from the South came a large proportion with hook-worm and its attendant anæmia and sluggishness of mind and muscle. There was also a large percentage of vice diseases. The state should take a much broader and deeper interest in the welfare of its youth. More thorough instruction is needed in personal hygiene. A powerful agency in correcting existing physical defects will be found in universal training for national service, and our physical training must be broad enough also to reach the girls and young women of the land.—Major General Wood, U. S. A., *Modern Medicine*, June, 1919, p. 97.

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Prominence of Industrial Hygiene in the Whole Health Scheme.—Goldwater gives a comprehensive syllabus of activities for the protection and promotion of the nation's health. The whole idea is presented in a detailed table which, for working purposes, he states has been found convenient and useful. The good work done by specialistic societies in the public health field must be made manifest to the man in the street and such function might be assigned to a federal health department with broader powers than those of the present Public Health Service. The American Public Health Association is a common meeting ground to the multitude of private agencies. In the past this Association has undertaken and successfully completed many valuable studies. A plea is made that the Association now embark upon the larger task of producing a series of volumes, a condensed encyclopædic presentation of sanitation and hygiene. In Dr. Goldwater's syllabus one is impressed with the relative amount of space given to industrial hygiene and closely associated headings such as air, lighting, etc.—S. S. Goldwater, M. D., *Modern Medicine*, June, 1919, pp. 109–116.

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Health Service, Hammermill Paper Company.—A centralized department known as the employment and service department has to do with all questions of industrial relations. Health service is the most important phase of all. The health of the worker and his family reflects directly upon production, quality of work, and earnings. The services include medical examination, first-aid, safety, sanitation, home visiting of absentees, compensation, and education. The word "service" is used instead of the word "welfare." "When a man is in good health he is brim full of energy and radiates good cheer, which is infectious to other workers about him. The reaction is just the opposite if he is ill." The success of home visiting lies solely in the hands of the one selected to do it. The wrong person may do great harm. A graduate nurse alone is not sufficient. This qualification is essential but other things are: broad human sympathy, the ability to meet people frankly and fairly and to make them feel they are giving as much as they receive, and the ability to carry our message to them as well as to bring back to us their point of view. Sample record forms are given for absences. "It is about as difficult to trace the direct, tangible results in this kind of work as it is from advertising." It produces big results in loyalty, esprit de corps, better understanding and contentment as evidenced by freedom from labor troubles, decreased turnover, less laying off, increased production, and a more wholesome atmosphere throughout the whole plant. —M. Harrison (Erie, Pennsylvania), *Modern Medicine*, June, 1919, pp. 121–126.

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Courses in Industrial Hygiene.—New bulletins have been issued covering special course in industrial hygiene by the School of Public Health, Harvard University with the Massachusetts Institute of Technology, and by the College of Medicine, University of Cincinnati.

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Occupational Diseases in Plant Physician's Work.—Among the twenty technical cases described as within the wide range of work of the plant physician, Strickland mentions seven, and possibly five more, which are occupational diseases, some of which are specifically occupational, and the balance partly so. These include nickel poisoning, ear wax plugs from oil and grinding materials, paronychia from oil and polishing substances, constipation in persons required to sit for long periods, eczema of the hands and forearms, epitaxis, headache and feeling nervous because "the work troubles her," severe pain in right arm and forearm possibly due to strain, infected scab of an old injury, ganglion or weeping sinew, and emery on the cornea. Most of the others would bear scrutiny from the work relations aspect. —S. P. Strickland (Waltham Watch Company). *Hospital Management*, July, 1919, p. 40.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

Anthrax Meningitis.—The anthrax had not been diagnosed during life as the pustule had not had time to develop its characteristic form. It was on the left cheek and the edema around was ascribed to phlebitis of the jugular vein. The patient died the second day with symptoms of fulminating meningitis, and anthrax bacilli were found in the cerebrospinal fluid.—Delater and Calmels, *Bull. Soc. Med. Hop.*, Paris, 43, 332 (1919).

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Effect of Typhoid Immunization on Pulmonary Tuberculosis.—Tuberculous foci will react to the toxin of the typhoid bacillus in the same way that they will to tuberculosis. Thus, typhoid immunization should not be conducted without due consideration of the condition of the patient as regards tuberculosis.—Sorgo, *Med. Klin.* No. 8 (1918); *Abstr. Bact.*, 2,362 (1919).

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Practical Value of the Complement-Fixation Test for Gonorrhea.—From a study of 500 tests on 403 cases it is concluded that only strongly positive reactions are of real diagnostic value. Patients with old encapsulated foci, which are not infective, and those with infectious urethro-prostatitis will sometimes give weak or negative reactions.—M. Krotoszyner, *Calif. State Jour. Med.*, 16, 90 (1918).

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Measles and Pneumonia.—Measles renders its victims extremely susceptible to pneumonia and for this reason measles patients should be carefully protected against exposure to the latter disease. They should be kept in bed during the entire period of sickness and should not be permitted to come in contact with visitors who might be unrecognized carriers of pneumonia infection.

This advice is especially pertinent at the present time when measles appears to be on the increase in many localities.—*Ohio Public Health Journal.*

(*M. T.*)

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An Atypical Strain of B. Paratyphosus B.—The organism which has been isolated showed specificity of agglutination, but it produced no acid or gas in dulcite peptone water and was non-motile. After subculturing on Witte's peptone broth agar during five years it has not altered in biological characteristics. The virulence for the mouse when injected subcutaneously corresponded to that of typical strains and gave rise to a generalized septicemia.—W. Broughton-Alcock, *Lancet* (*Engl.*), 196, 1023 (1919).

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Physical State of Blood Serum in Relation to Agglutinin and Antibody Content.—By submitting blood serum and other body fluids to a mechanical process, which includes friction combined with pressure, physical changes can be brought about in these fluids which throw some light on the condition in which hæmagglutinins, bacterial agglutinins, complement, complement deviating substances and anti-bodies exist in the blood serum. They suggest that the blood serum and the body fluids, the secretions and excretions, form a graded series with the blood serum at one end, and the excretions, such as the urine, at the other. The hæmagglutinins show marked differences of composition in the different liquors and sediments and they also vary according to the extent to which the fluid has been submitted to the mechanical frictional process. It may be possible to raise the agglutinating capacity of a serum by a mechanical process *in vitro* for therapeutic purposes. From some recent experiments the author is inclined to regard horse serum as markedly toxic to the leucocytes of certain individuals, and this fact may have some reference to the varying liability to serum sickness shown by different individuals.—C. J. Bond, *Brit. Med. Jour.*, No. 3050, p. 729 (1919).

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Milk Injections and the Wassermann Reaction.—The serum of a luetic patient which gives a negative Wassermann reaction becomes positive following the injection of milk. In control cases the negative Wassermann is unchanged as a result of the injection.—G. Uddgren, *Berl. Klin. Wochensch.*, No. 15 (1918).

*

"Mutation" of Bacteria.—By inoculating guinea-pigs with pure strains of diphtheria bacilli it is possible to change the typical characteristic of the organism. This change takes place gradually. The term "mutation" is misleading and should not be employed. True mutation of bacteria has not been observed as yet.—K. E. F. Schmitz, *Centr. Bl. Bakt., Abt. I.* (*Orig.*), 77, 369 (1916).

*

Selective Cholera Media.—Aronson succeeded in growing cholera well on Endo agar to which dextrin and cane sugar had been added. The colonies appeared bright red. The authors obtained still

better results by the addition of 2.5 per cent chlorophyll.—G. Seifert and H. Bamberger, *Muenchen. Med. Wochensch.*, 63, 527 (1916).

✱

Some Optical Properties of Bacterial Emulsions.—By observing the transmission of light through a bacterial emulsion some idea of the quantity of the bacterial substance present in the emulsion may be gained.—Fred Viles, *Compt. Rend.*, 168, 575 (1918).

✱

Studies on the Metabolism of Actinomycetes.—Blood agar forms a good medium for the growth of actinomycetes. The production of a dark pigment by some and a clear zone, indicating hemolysis, by others is characteristic. Loeffler's blood serum forms a good medium for the growth of actinomycetes, the liquefaction of the serum by some and the production of a dark brown to black pigment by others are distinctive properties of some of these organisms. The organisms that produce hemolysis and liquefy the blood serum are among the ones that can produce active proteolytic enzymes.—S. A. Waksman, *Jour. Bact.*, 4, 189 (1919).

✱

Studies on Diphtheria Toxin.—*B. diphtheriæ* could not be cultivated in synthetic media composed of amino acids and mineral salts adjusted to the optimum hydrogen ion concentration. Typical luxuriant growth was obtained in a mixture of 99.5 per cent synthetic medium and only 0.5 per cent of bouillon. Production of active toxin, however, required the presence of 10 per cent bouillon. Cystin, when added to plain beef infusion, not only permitted rapid and heavy vegetation, but a strong toxin was also elaborated. Tryptophane, under the same conditions, gave a weaker toxin. The results obtained favor the belief that diphtheria toxin is not a synthetic product, but rather a catabolic substance elaborated by the organism only in presence of certain amino acids and accessory factors, the latter probably of a vitamine character.—L. Davis and N. S. Ferry, *Jour. Bact.*, 4, 217 (1919).

✱

Immunity Reactions in Egyptian Bilharziasis.—A specific antigen can be produced from the cercariæ of the two species, *S. mansoni* and *S. hæmatobium*, which reacts with bilharzia infected sera. This is the first record of a specific substance having been isolated from the body of an invertebrate intermediary infected with a human parasite which will react with human serum. It is claimed that the test is more specific than is the Wassermann reaction for syphilis, inasmuch as the tendency to pseudo-reactions appears to be less marked. The percentage of positive results is particularly marked in the early stages, before the appearance of ova in the urine or excreta.—N. H. Fairley, *Jour. Royal Army Med. Corps*, 32, 243 (1919).

✱

Technic for the Wassermann Reaction.—Description of method employed at the City Hospital Pathological Laboratories, New York City.—J. H. Larkin, L. H. Cornwall and I. J. Levy, *Jour. Lab. Clin. Med.*, 4, 571 (1919).

✱

Cholera Prophylactic Vaccination.—The new cholera vaccine of Kasauli combines the efficiency of Haffkine's vaccine with no local or general reaction. It consists of a pure, sterilized culture of cholera spirillum and can safely be injected even into infants. It is contraindicated when a person suffers from fever or bowel complaints.—A. Roy, *Ind. Med. Gaz.*, 104, 209 (1919).

✱

Study of Dreyer's Agglutination Technic in the Army.—The agglutinating titer of the serum of the healthy individuals inoculated with the triple typhoid vaccine six months or more before rarely runs higher than 1 to 200. A high agglutinating titer for one of the organisms of the typhoid group permits a positive diagnosis. The cases studied suggest strongly that information as to prognosis may be obtained from the agglutination curve. Early blood culture should not be omitted. The Dreyer method should be used when the blood culture is negative, in a clinically suggestive case. The examination of the stoll and urine is important.—A. G. Eggerth, *Jour. Inf. Dis.*, 25, 166 (1919).

✱

New Method for Typing Pneumococci by the Use of Blood.—Ten cc. of blood are drawn with sterile precautions into test tubes containing a few crystals of potassium oxalate (sufficient to prevent clotting). The blood is then shaken with pure fresh ether, added in small, successive amounts, until the red cells are completely laked. The laked blood is transferred to a sterile centrifuge tube and centrifuged at high speed for five minutes. The disk of red cell shadows which collects at the surface is removed with a heated platinum loop. With a sterile pipette, 0.3 cc. of the laked blood is placed in each of four sterile stoppered tubes 0.8 by 13 cm. To each of the first three is added 0.5, respectively, of saline emulsion of proved Type I, II, and III, pneumococci grown on glucose serum agar. The fourth tube constitutes the control. Sterile physiologic saline is added to all tubes, sufficient to make up to 1 cc. Sterile pipettes are used throughout. All tubes are stoppered and placed in a water bath at a temperature of 37° C. until the color change appears. The reaction consists in the formation of hemoglobin derivatives, mostly methemoglobin, which impart to the tube an unmistakable brownish-

red color. The final result is a dark brownish-red, gelatinous clot. The reaction, as determined by the naked eye, has been noted as early as after two hours. The average time for appearance of color change is from six to eight hours. Clotted blood should not be used. The ether should be free from alcohol, poured fresh from closed containers. Saline emulsions of actively growing strains of pneumococci, grown on glucose serum agar, should be employed. Strains that have been artificially cultivated for some time and are growing poorly have delayed the reaction, and may even prevent any change. Studies were made on 52 patients. The tests in 49 of the cases could be confirmed by agglutinin reactions made on organisms isolated from sputum, lung puncture, or both.—Leon Loewe, S. Hirshfeld and K. Wallach, *Jour. A. M. A.*, 73, 179 (1919).

✻

Studies on the Gruber-Widal Reaction Following Typhoid Vaccination.—The protective inoculation is followed by a latent period of approximately 3 to 6 days; agglutinins then appear. The maximum agglutination is attained after 2 to 4 weeks, and decreases rapidly from the third month after the inoculation. The reaction is again negative in approximately 30 to 40 per cent of the subjects about 5 to 7 months after the vaccination. Fevers, other than typhoid, have practically no influence on the agglutinin curve when they occur 6 or more months after the last inoculation. Typhoid infection very frequently markedly increases the agglutinins in a vaccinated subject just as in an unvaccinated person. For diagnostic purposes, the Gruber-Widal reaction has no significance during the first 4 months after protective vaccination. A positive reaction of more than 1 to 400 from 5 to 7 months after vaccination signifies typhoid infection in 90 per cent of the cases.—F. Klemperer and F. Rosenthal, *Z. Klin. Med.*, 86, 1 (1918); *Chem. Abst.*, 13, 1600 (1919).

✻

Cerebrospinal Fluid Findings in "Spanish Influenza."—Spinal fluid cultures of so-called Spanish influenza reveals the presence of a characteristic organism in a large ratio of the cases. The organism is a bacillus, Gram. negative, facultative anærobe, nonmotile, acid producing and spore forming. The organism was found in 81.8 per cent of the cases studied. This organism is different from any heretofore isolated from the spinal fluid.—H. R. De Luca, *N. Y. Med. Jour.*, 110, 103 (1919).

✻

Case of Hydrophobia Eighteen Months after Infection.—History of a case which occurred back as far as 1885 in India. The man, a lieutenant in a Bengal cavalry regiment, was bitten by a rabid dog at the end of March, 1884. The period of incubation was one and a half years. A brief description of the case appeared in the annual report of the Army Med. Dept. for 1884.—P. J. Freyer, *Brit. Med. Jour.*, No. 3052, June 28, 1919.

✻

Arsphenamin Apparently Wards off Syphilis.—The author, chief of the French hospital at Manchester, inoculated himself, March 21, 1918, in the presence of twenty physicians, with a little serous fluid from a syphilitic chancre. In less than one hour afterward he was given an intravenous injection of 0.6 gm. of arsphenamin. No local or general symptoms of any kind followed, and the Wassermann test applied every month since has been constantly negative.—A. C. Magian, *Bull. Académie Medicine*, 81, 657 (1919); *Jour. A. M. A.*, 73, 230 (1919).

✻

Etiology of Yellow Fever.—By the inoculation of guinea-pigs intraperitoneally with the emulsions of kidneys from wild rats and mice captured in Guayaquil, it was found that 67 per cent of the wild rats tested harbored in their kidneys a leptospira which produced in guinea-pigs symptoms and lesions identical with those produced by *L. icterohæmorrhagiæ* derived either from patients suffering from infectious jaundice in Japan or Europe, or from wild rats caught in New York. Immune sera were prepared in rabbits by injecting different strains of the Guayaquil leptospira. Marked agglutination took place with the homologous strain. Pfeiffer's phen[omenon] was positive. The same sera had no effe[ct] *L. icteroides*. The Guayaquil leptospira [differs] from *L. icteroides* in its immunity reacti[ons].—H. Noguchi, *Jour. Exp. Med.*, 30, 87 (1919).

✻

Germicidal Power of Antiseptic Oils.—A [method] which may provisionally be regarded as sat[isfactory] for determining quantitatively the germici[dal power] of antiseptic oils and substances dissolv[ed in oil] has been developed. Phenol dissolved in [an] oil has germicidal value approaching th[at of] value in water and can serve as an arbitra[ry] ard for comparison when testing the a[ctivity of] other oils and oil-soluble substances. Th[e method] as thus far developed is defective in tha[t the] vantage which a substance might poss[ess] shape of rapidity of action is largely r[elative to] the 24-hour period of exposure used. [Undue] tion given to this factor may lead to a lim[ited field] of improvement in the method describe[d].—H. McMaster, *Jour. Inf. Dis.*, 24, 378 (191[9]).

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INFLUENZA MORTALITY AMONG WAGE EARNERS AND THEIR FAMILIES.

A PRELIMINARY STATEMENT OF RESULTS.

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Whites rather than colored people were attacked by the pandemic of influenza and the young rather than the old, a reversal of usual conditions. These conclusions are based on the accurate figures obtainable from 12,000,000 policies and 105,552 claims. : : :

THE following is a brief statement of some of the basic findings of an investigation which has been made into the epidemic of influenza. It is limited to the policyholders of the Industrial Department of the Metropolitan Life Insurance Company and covers the period from October 1, 1918 to June 30, 1919. It should be noted in this connection that in this department there are represented over 12,000,000 policyholders, as of December 31, 1918; that these policyholders include both races, white and colored, males as well as females, and all age periods, excepting early infancy and extreme old age. This group of insured wage earners is well distributed over the entire United States and Canada. Effort was made, furthermore, to make the record of influenza deaths as complete as possible. In all, 105,552 policy claims were paid during the period under investigation, representing a total of 70,729 deaths from influenza-pneumonia.* It will be seen from these considerations that the results of this study should be generally applicable to the working population of the United States. Only crude descriptive data are given and no attempt will be made to give results which depend upon refined statistical analysis. Such work is still being carried on and will be reported on in a later and fuller statement.

*Includes all deaths classified as "influenza" (10), "broncho-pneumonia" (91), and "pneumonia-lobar and undefined" (92). The numbers refer to titles of the International List of Causes of Death.

The 70,729 deaths included in this study were largely concentrated during the first three months, namely, October, November, and December of 1918. In fact, slightly more than three fourths of all the deaths from influenza-pneumonia in the nine months under observation occurred in these three months. The month of October alone showed 34,471 deaths or nearly one half of all the deaths in the entire period. In this epidemic, there was no clearly defined preparatory period leading up to the month of greatest incidence. The following table shows the percentage distribution of the deaths according to single months, and by quarters:

TABLE 1.

ACTUAL AND CUMULATIVE NUMBER OF DEATHS FROM INFLUENZA-PNEUMONIA, DURING EACH CALENDAR MONTH, OCTOBER, 1918 TO JUNE, 1919.

Actual and Cumulative Percentage in Each Month of Total in Period.

Period	Number	Percentage	Cumulative number	Cumulative percentage
October, 1918 to June, 1919	70,729	100.0	70,729	100.0
By month:				
October	34,471	48.7	34,471	48.7
November	10,506	14.9	44,977	63.6
December	8,227	11.6	53,204	75.2
January	6,724	9.5	59,928	84.7
February	3,925	5.6	63,853	90.3
March	3,677	5.2	67,530	95.5
April	1,829	2.6	69,359	98.1
May	1,058	1.5	70,417	99.6
June	312	.4	70,729	100.0
By quarter:				
Oct. to Dec., 1918	53,204	75.2	53,204	75.2
Jan. to Mar., 1919	14,326	20.3	67,530	95.5
Apr. to June, 1919	3,199	4.5	70,729	100.0

It will be seen that the epidemic was virtually over by the end of March. A few thousand deaths occurred in the last quarter, April to June, but not to an excessive degree when it is remembered that there are always deaths from these causes at this time of the year, especially in April. It will be desirable, therefore, to call attention to the facts by quarterly periods, remembering that the first quarter from October to December represented the period of severest incidence, the second quarter from January to March, the period of secondary recurrences and the third quarter, April to June, the return toward the usual low rates of the late spring and early summer months.

DEATH RATE FROM INFLUENZA-PNEUMONIA.

When related to the number of years of life exposed, these deaths indicate a rate of 774 per 100,000 during the nine months' period. This is an annual rate; that is, it is what the rate would have been if the experience had continued for a full year. In October, the death rate was 3,395 per 100,000; in November, 1,035, the figures declining rapidly thereafter, with a slight halt, however, in the months of February and March. The month of March is a high influenza-pneumonia month in any year. As against these rates for the epidemic period, there was a rate of 152 per 100,000 during the twelve months ending September 30, 1918. The difference between 774 and 152 per 100,000, namely, 622 is an approximate measure of the effect of the epidemic. The year 1918, prior to the epidemic, was already significantly affected with mortality from respiratory disease, especially during March and April, when high death rates prevailed. During the period 1911 to 1917, considering these seven years as a *norm*, there was an annual influenza-pneumonia rate of 125 per 100,000.

On the basis of the rate for the year ending September, 1918, there would have been only 13,891 deaths as against the 70,729 that actually occurred.

Table 2 presents the rates by months and by quarters for the entire experience, as well as for white and col-

ored lives and for each sex group separately:

TABLE 2.

DEATH RATE PER 100,000 YEARS OF LIFE IN EACH MONTH, AND BY QUARTERS, OCTOBER, 1918 TO JUNE, 1919.

Classified by color and by sex.

Period	Death rate per 100,000 years of life				
	Total	White		Colored	
		Males	Females	Males	Females
October, 1918 to June, 1919	774	789	763	767	767
By months:					
October....	3,395	3,674	3,325	2,816	2,664
November .	1,035	1,091	1,010	944	945
December .	810	768	833	807	902
January ...	662	607	672	741	869
February ..	387	354	382	515	517
March	362	325	358	528	488
April.....	167	160	169	288	297
May.....	104	97	89	204	182
June.....	31	29	28	60	42
By quarters:					
Oct. to Dec.	1,747	1,844	1,723	1,522	1,504
Jan. to Mar.	470	428	471	594	625
Apr. to June	105	95	95	184	174
"*Norm*" periods					
Oct., 1917 to Sept. 1918	152	164	116	316	215
Total, 1911 to 1917	125	126	107	217	167

Graph I illustrates these data.

SEX, COLOR AND AGE INCIDENCE OF INFLUENZA-PNEUMONIA.

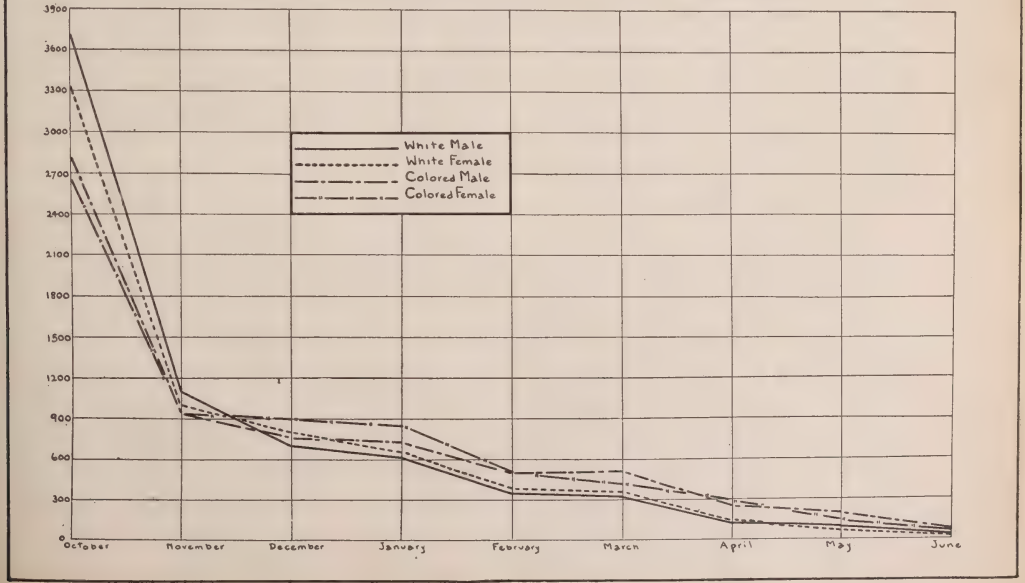
The chief interest in the statistics of the influenza epidemic must center for some time around the relative incidence of the deaths in the sex, color and age groups of the population. Such statistics, if authoritative, throw light on the natural history of the disease, indicating to the epidemiologist where its invasion was most or least disastrous and where he may concentrate his research. To the public health officer and to the medical profession generally, these data will indicate, perhaps, where forces for the control of this disease should be concentrated.

In view of the importance of these practical bearings, it will be necessary, of course, that such figures describing the relation between the disease and groups of the population be consistent, not only for the various phases of the epidemic, but for the different parts of

GRAPH I.

Death Rates per 100,000 Years of Life. INFLUENZA-PNEUMONIA. By Color and by Sex
October, 1918 to June, 1919.

Metropolitan Life Insurance Company - Industrial Department



the country where the epidemic occurred. This is assured by the uniform methods of classification employed, and by the special efforts which were made to have these statistics as accurate as possible. We shall discuss the relations between these data for sex, color and age in this order.

Sex-Incidence of Influenza-Pneumonia Mortality.

The respiratory diseases, including influenza-pneumonia, under normal conditions, show a higher mortality incidence among males than among females. In the seven year period from 1911 to 1917, the mortality rate showed an excess of 18 per cent, males over females, among white lives and of 30 per cent among colored lives. This then is the background against which the figures for the epidemic must be thrown. We find that for the entire period from October, 1918 to June, 1919, the rates for males and females, respectively, were 789 and 763 among white lives and 767 for both males and females among colored lives. In other words, the excess of males over females among the whites was only 3 per cent, and there was no excess at all among colored lives. These figures are shown in Table 2.

This would seem to indicate, therefore, that the effect of the epidemic was not much (if any) greater on males than on females. In fact, once we pass the crest of the epidemic, we find in the quarter from January to March, 1919, that the death rates for males are even lower than for females. There is, altogether, a suggestion that the excess mortality caused by the epidemic did not operate on the sexes as the normal mortality from influenza-pneumonia had in previous years. This fact of excess respiratory disease among females is in itself one well worthy of more intensive study, especially, when it is remembered, that a considerable number of deaths of females were assigned to the puerperal causes which were undoubtedly complicated by attacks of influenza, although not so certified by physicians. The following table summarizes the facts with reference to sex-ratios in the two main color groups and by quarterly periods:

TABLE 3.

Percentage, Male or Female Death Rate—Influenza-Pneumonia.

Classified by quarterly periods, October, 1918 to June, 1919.

Period	White	Colored
October, 1918 to June, 1919	103	100
October to December	107	101
January to March	91	95
April to June	100	106
Norm:		
October, 1917 to Sept., 1918	141	147
Total, 1911 to 1917	118	130

Color or Race Incidence of Influenza-Pneumonia Mortality.

The second consideration is with reference to color. In this connection, a very clear picture is presented. Normally, the respiratory diseases are much more highly represented among colored persons than among whites, and this applies to both sexes. Thus, in the seven year period, from 1911 to 1917, influenza-pneumonia showed an excess of 72 per cent colored males over white males, and of 56 per cent colored females over white females. But, during the period of the epidemic, the situation was reversed. The whites suffered from higher rates than the colored. This is clearly shown during the first three months of the epidemic, when colored males showed a rate of 1,522 per 100,000, as compared with a rate of 1,844 per 100,000 for white males. The same condition is shown among females, the colored rate being 1,504 and the white rate, 1,723. Put in other words, while the rate among white males dur-

ing this period, October to December, was nearly fifteen times as great as during the period 1911 to 1917, that of colored males was only seven times as great as the rate during the same seven year period. White females during the height of the epidemic showed a rate more than sixteen times as high as the normal, while colored females experienced a rate only nine times as high. After the first of January, 1919, that is, after the severest period of the epidemic had passed, the colored group showed higher rates than the white, and the amount of excess approximated what had prevailed in normal times, as the distance from the explosive period of the epidemic increased. In the last quarter, April to June, the excess of colored males over white males was 94 per cent and of colored females over white females, 83 per cent, figures which are almost identical with those for the twelve months ending September 30, 1918. The facts indicate with great clearness that the effect of the epidemic was much greater among white lives than among colored lives. This difference wore off as the epidemic waned and conditions returned to normal, as they virtually did during the last quarter of this period, from April to June, when a marked excess of colored mortality is shown over white mortality. The following table gives the relation of colored to white mortality by quarters for each of the two sexes:

TABLE 4.

PERCENTAGE, COLORED OF WHITE INFLUENZA-PNEUMONIA DEATH RATE.

Classified by sex and by quarters, October, 1918 to June, 1919.

Period	Percentage colored of white	
	Male	Female
October, 1918 to June, 1919	97	101
October to December	83	87
January to March	139	133
April to June	194	183
Norm:		
October, 1917 to Sept. 1918	193	185
Total, 1911 to 1917	172	156

AGE INCIDENCE OF INFLUENZA-PNEUMONIA MORTALITY.

It is when we consider the facts for age that the most instructive relations with reference to the influenza-pneumonia epidemic are brought out. We shall find that during the period of the attack, the disease affected the population in a manner distinctively its own, and this is quite different from that in which the diseases known as influenza and pneumonia affect the community at large during non-epidemic periods. During normal times, as indicated by the facts for the seven year period from 1911 to 1917, we find that influenza-pneumonia affects primarily the first age period of life, ages one to four years, and the period of late middle life and old age. The rates are normally minimal between 5 and 30 years. The picture of the pandemic by age groups shows three modal points instead of two. In fact, the highest rate among the whites is in the period of early adult life, namely, between 25 and 34 years, where, as we remarked above, the normal rates are minimal. Among the colored group this age period also shows a very high point but it is not as high as that in the first five years of life.

EXCESS INFLUENZA-PNEUMONIA MORTALITY.

When considered from the point of view of *excess* influenza-pneumonia mortality, we find that the epidemic affected most the period of early infancy and early childhood, the period of early adult life and culminated between 25 and 34 years. The period of old age shows no significant *excess* during the period of the epidemic. The figures for April to June are very much lower than for the normal period, but these data are ob-

viously incomparable because of the differences in season, the age "norm" for 1911 to 1917 being based upon entire calendar years.

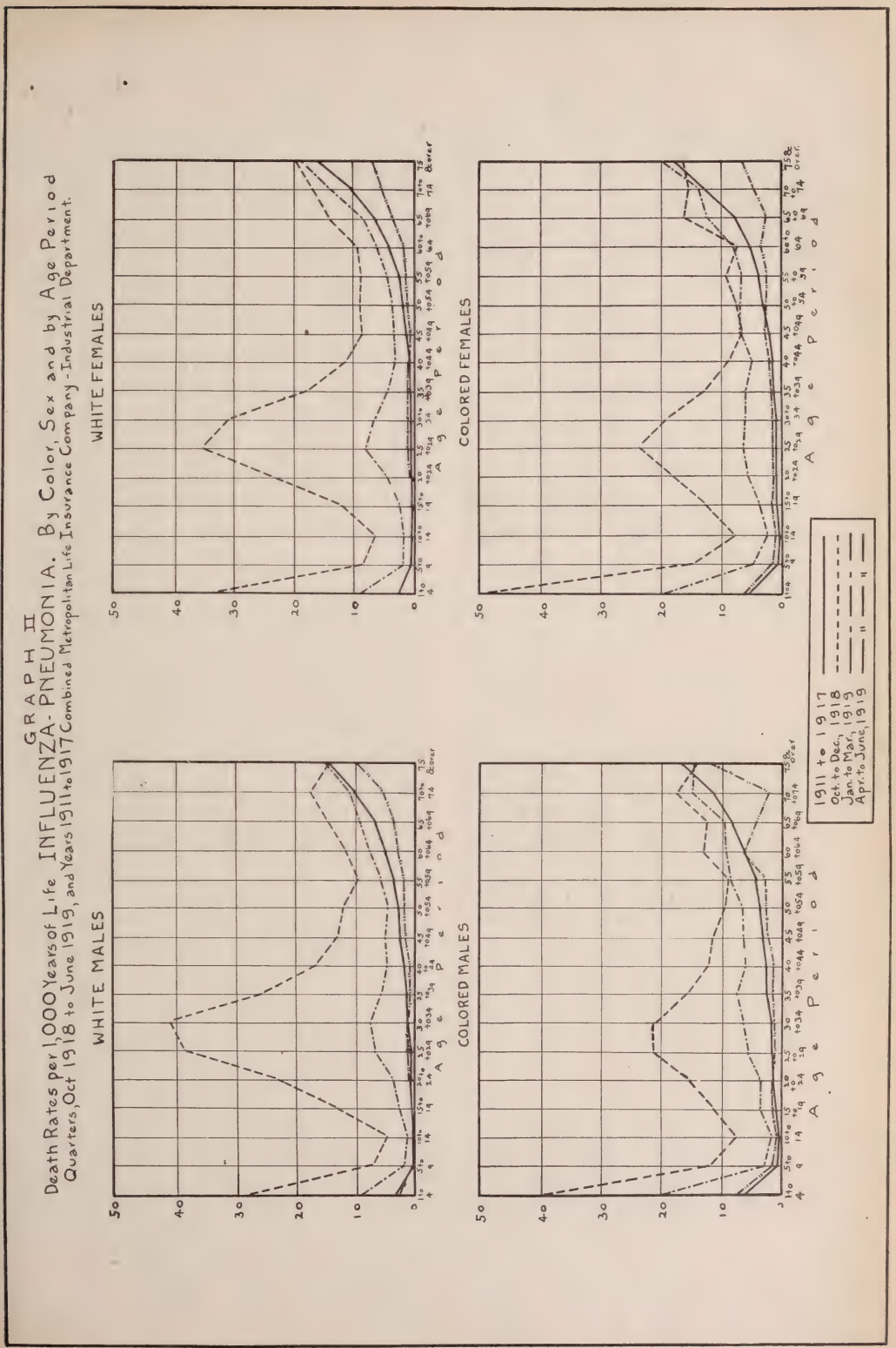
The chief characteristics of this peculiar age incidence of the influenza-pneumonia mortality are shown in the following graph for each color and sex. A solid line or other configuration is presented for each one of the three quarterly periods of the study. Graph III shows more clearly than the figures, the three modal points, especially during the last quarter of the year 1918. During the first two quarters of 1919, the points of difference from the normal are less prominent and later become entirely submerged in the "norm." The outstanding fact is that for white males during a considerable age period of active adult life, deaths from influenza-pneumonia occurred during the three months of October to December which, if they had continued for a whole year at that rate, would have removed approximately 4 per cent of the population at those ages; among white females, 3½ per cent; among colored males, approx-

TABLE 5.

DEATH RATES PER 100,000 YEARS OF LIFE—INFLUENZA-PNEUMONIA—1911 TO 1917 AND VARIOUS QUARTERS OF EPIDEMIC PERIOD COMPARED.

(Rates less than 1911 to 1917 norm, shown in bold-face.)

Color; Age	Males									Females								
	1911 to 1917	Oct. '18 to June, '19		Oct. to Dec., '18		Jan. to Mar., '19		Apr. to June, '19		1911 to 1917	Oct. '18 to June, '19		Oct. to Dec., '18		Jan. to Mar., '19		Apr. to June, '19	
		Rate	(Oct. to June)—(1911 to 1917)	Rate	(Oct. to Dec.)—(1911 to 1917)	Rate	(Jan. to Mar.)—(1911 to 1917)	Rate	(Apr. to June)—(1911 to 1917)		Rate	(Oct. to June)—(1911 to 1917)	Rate	(Oct. to Dec.)—(1911 to 1917)	Rate	(Jan. to Mar.)—(1911 to 1917)	Rate	(Apr. to June)—(1911 to 1917)
White persons:																		
All ages—one and over	127	789	662	1844	1717	428	301	95	**32**	107	763	656	1723	1616	471	364	95	12
1 to 4	261	1300	1039	2806	2545	857	596	238	**23**	237	1449	1212	3218	2981	887	650	243	6
5 to 9	32	312	280	733	701	160	128	43	11	33	377	344	900	867	190	157	40	7
10 to 14	14	198	184	479	465	100	86	15	1	17	282	265	673	656	147	130	26	9
15 to 19	27	518	491	1296	1269	230	203	29	2	20	487	467	1201	1181	235	215	24	4
20 to 24	36	881	845	2273	2237	322	286	49	13	25	946	921	2304	2279	474	449	58	33
25 to 29	60	1532	1472	3878	3818	651	591	67	7	34	1471	1437	3511	3477	810	776	93	59
30 to 34	99	1628	1529	4075	3976	714	615	95	**4**	44	1289	1245	3084	3040	693	649	90	46
35 to 39	138	1081	943	2569	2431	574	436	101	**37**	58	767	709	1760	1702	462	404	78	20
40 to 44	188	724	536	1671	1483	407	219	93	**95**	77	500	423	1114	1037	317	240	68	**9**
45 to 49	228	639	411	1291	1063	502	274	125	**103**	106	417	311	850	744	328	222	71	**35**
50 to 54	291	613	322	1199	908	451	160	189	**102**	158	465	307	896	738	384	226	115	**43**
55 to 59	378	569	191	994	616	550	172	165	**213**	246	487	241	870	624	461	215	131	**115**
60 to 64	496	729	233	1149	653	784	288	255	**241**	410	572	162	930	520	611	201	175	**235**
65 to 69	699	923	224	1494	795	925	226	350	**349**	676	857	181	1386	710	842	166	343	**333**
70 to 74	1015	1125	110	1758	743	1088	73	528	**487**	1039	1198	159	1664	625	1387	348	542	**497**
75 and over	1416	1288	**128**	1411	**5**	1481	65	972	**444**	1644	1501	**143**	1982	338	1844	200	678	**966**
Colored persons:																		
All ages—one and over	216	767	551	1522	1306	594	378	184	**32**	166	767	601	1504	1338	625	459	174	8
1 to 4	593	2223	1630	3965	3372	1975	1382	730	137	553	2483	1930	4873	4320	1946	1393	629	76
5 to 9	66	532	466	1201	1135	290	224	105	39	64	694	758	1463	1399	488	424	132	68
10 to 14	35	321	286	763	728	144	109	56	21	42	363	321	781	739	231	189	75	33
15 to 19	76	537	461	1133	1057	346	270	131	55	77	602	525	1263	1186	391	314	153	76
20 to 24	120	687	567	1559	1439	377	257	126	6	85	833	748	1826	1731	563	478	110	25
25 to 29	149	928	779	2131	1982	545	396	108	**41**	80	1024	944	2307	2227	639	559	126	46
30 to 34	164	975	811	2134	1970	653	489	138	**26**	88	893	805	1935	1847	613	525	132	44
35 to 39	221	824	603	1540	1319	786	565	147	**74**	116	681	565	1288	1172	609	493	147	31
40 to 44	241	660	419	1228	987	610	369	143	**98**	131	508	377	886	755	491	360	146	15
45 to 49	304	674	370	1181	877	619	315	223	**81**	170	515	345	665	495	673	503	208	38
50 to 54	390	641	251	994	604	658	268	271	**119**	269	585	316	762	493	732	463	261	**8**
55 to 59	458	701	243	921	463	903	445	278	**180**	381	619	238	941	560	680	299	235	**146**
60 to 64	629	959	330	1312	683	934	305	631	2	513	615	102	717	204	789	276	341	**172**
65 to 69	830	888	58	1243	413	977	147	444	**386**	782	1019	237	1621	839	1223	441	214	**568**
70 to 74	1136	1154	18	1780	644	1484	348	198	**938**	1268	1105	**163**	1524	256	1325	57	464	**804**
75 and over	1635	1340	**295**	1418	**217**	1418	217	1182	**453**	1783	1416	**367**	1634	**149**	1961	178	654	**1129**


GRAPH II
INFLUENZA-PNEUMONIA. By Color, Sex and by Age Period
Death Rates per 1,000 Years of Life Quarters, Oct 1918 to June 1919, and Years 1911 to 1917 Combined Metropolitan Life Insurance Company - Industrial Department.
WHITE FEMALES
WHITE MALES
COLORED FEMALES
COLORED MALES
Age Period
1911 to 1917
Oct. to Dec. 1918
Jan. to Mar. 1919
Apr. to June 1919

imately 2 per cent, and for colored females, nearly $2\frac{1}{2}$ per cent. In the first five years of life, the annual rate was a little less than 3 per cent for white males rising to a maximum of 5 per cent among colored females. These are the crude measures of the severity of this epidemic.

One thing is clear, namely, that we are concerned in this epidemic with a disease or group of diseases which behave very differently from the way in which the disease known by the same names affected the community in previous years. The question is very properly suggested by the figures whether we are dealing in the two periods, *i. e.*, the endemic and the epidemic periods, with the same disease entities. No other disease for which reliable figures are at hand shows similar divergencies as to age incidence in different periods of time. The color relations also suggest a similar query. These peculiar relations of age and color incidence for the epidemic period are strikingly alike throughout the country. As such relations are ordinarily not subject to much variation, the changes in the period of the epidemic at least suggest that we may be concerned with a different causative agent. This problem, however, is not within the sphere of the statistician whose function is to call the attention of the epidemiologist to the facts. It is the proper business of the latter to determine in the last analysis between the identity and lack of identity between the endemic and epidemic "influenzas" and "pneumonias."

Much further study is required to clear up the meaning of these age relations in the several color and sex groups. Work along these lines is being carried on and gives much encouragement in view of the completeness and high degree of accuracy of the data for insured wage earners, both as to lives exposed and number of deaths for each color, sex and age group. Graph II and Table 5 give the basic facts with reference to age, sex and color for each one of the three month periods of the epidemic and for the "norm," that is, the years 1911 to 1917.

For the present, we give on graph III the *excess* of influenza-pneumonia experience in each quarter over the "norm" 1911 to 1917 for each color and sex class.

Mortality from Other Diseases During the Epidemic Period.

In the last quarter of 1918, a number of changes in death rates from other diseases than influenza and the respiratory diseases occurred. These changes may throw light on the nature of the epidemic since, in many cases, they were the direct resultant of the epidemic itself. This is clearly the case in connection with the increase from the puerperal diseases and it is suggested that a similar relation may have occurred in connection with the increase in mortality from pulmonary tuberculosis and heart disease. We find on comparing the death rate of the last quarter of 1918 with that of the last quarter of 1917 that whooping-cough increased among white lives from 5 to 11 per 100,000; and among colored lives, from 8 to 14. It is, of course, possible that some of these cases of whooping-cough were truly influenza or at least complicated by influenza and were confused by the physicians in the statement of cause of death. The tuberculosis death rate increased from 143 to 162 among white lives; but, among the colored, there was a decrease, 378 to 335. For organic diseases of the heart, we find an increase from 130 to 154 per 100,000 among white lives, and from 211 to 217 among the colored. Too great stress cannot be put on these figures, especially among the colored; the white change may be significant. The greatest difference occurred in connection with the puerperal diseases which increased from 15 to 55

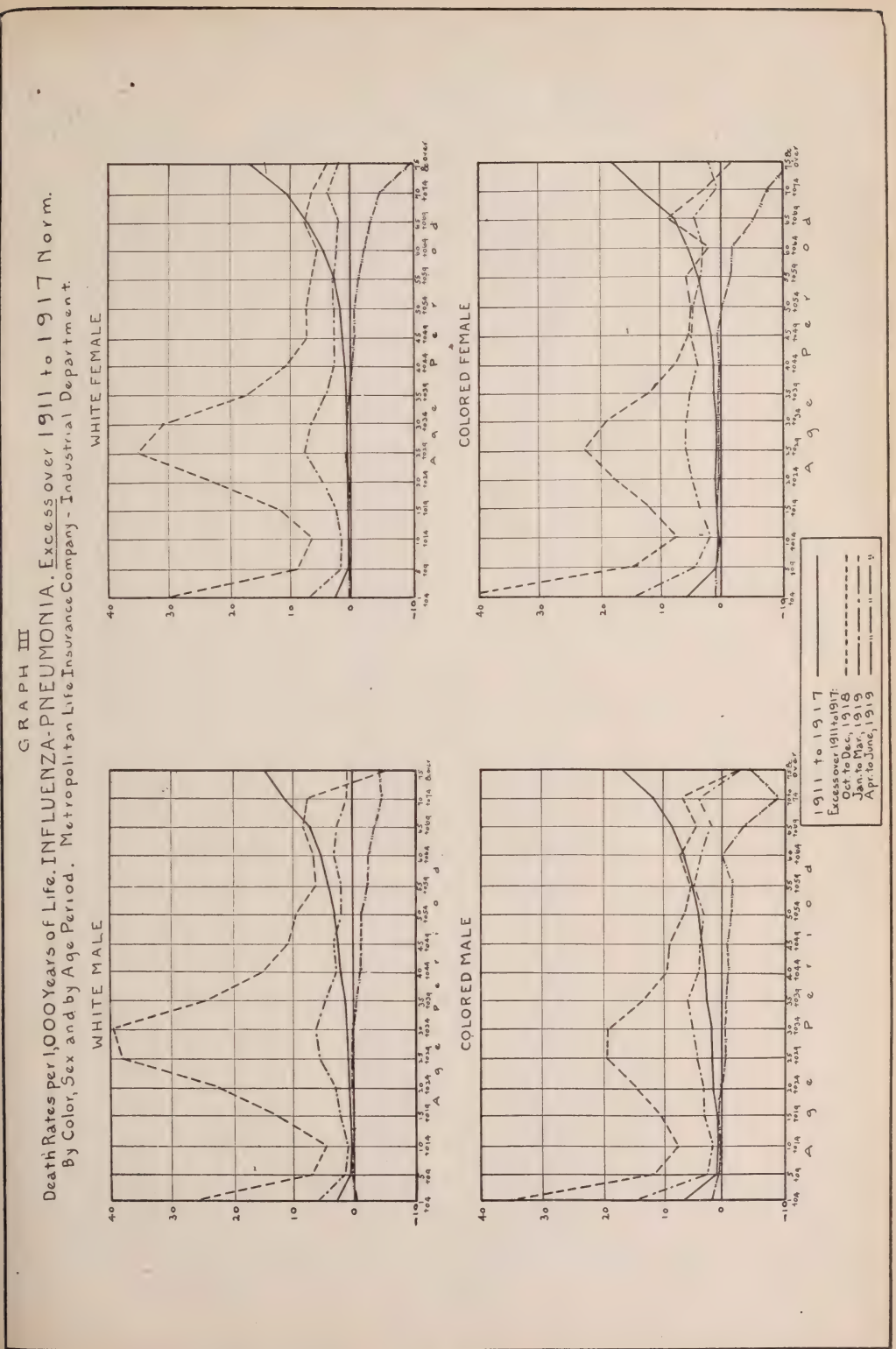

GRAPH III
Death Rates per 1,000 Years of Life. INFLUENZA-PNEUMONIA. Excess over 1911 to 1917 Norm.
By Color, Sex and by Age Period. Metropolitan Life Insurance Company - Industrial Department.
WHITE FEMALE
COLORED FEMALE
WHITE MALE
COLORED MALE
Age Period
1911 to 1917
Excess over 1911 to 1917:
Oct. to Dec., 1918
Jan. to Mar., 1919
Apr. to June, 1919

TABLE 7.

CLAIM RATE PER 1,000 POLICIES (ANNUAL BASIS).

Influenza-Pneumonia During Period October, 1918 to June, 1919.

Area	Influenza-pneumonia claim rate per 1,000 Oct. '18 to June '19
UNITED STATES AND CANADA	8.1
United States	8.2
Canada	7.3
BY GEOGRAPHIC DIVISIONS:	
New England	8.9
Middle Atlantic	9.1
East North Central	6.4
West North Central	6.2
South Atlantic	8.8
East South Central	7.6
West South Central	9.0
Mountain	5.6
Pacific	5.8
BY STATES:	
New England	
Maine	7.9
New Hampshire	9.9
Vermont	9.6
Massachusetts	8.9
Rhode Island	8.7
Connecticut	9.3
Middle Atlantic	
New York	7.8
New Jersey	9.1
Pennsylvania	11.2
East North Central	
Ohio	7.1
Indiana	6.2
Illinois	6.5
Michigan	5.2
Wisconsin	5.4
West North Central	
Iowa	6.0
Kansas	6.9
Nebraska	7.2
Minnesota	5.1
Missouri	6.2
South Atlantic	
Delaware	11.9
Maryland	9.8
District of Columbia	9.1
Virginia	8.2
West Virginia	8.4
North Carolina	9.0
South Carolina	8.6
Georgia	6.4
Florida	7.1
East South Central	
Alabama	8.3
Kentucky	8.0
Tennessee	7.0
West South Central	
Arkansas	5.6
Louisiana	10.1
Oklahoma	6.2
Mountain	
Colorado	14.0
Idaho	4.1
Montana	5.2
Utah	5.1
Pacific	
Washington	4.2
Oregon	4.0
California	6.3
BY CITIES:*	
Maine	
Lewiston	6.3
Portland	9.9
New Hampshire	
Dover (N. H.)	10.5
Manchester	9.2
By Cities (cont.)	
Vermont	
Burlington	9.8
Massachusetts	
Boston	9.6
Brockton	12.1
Cambridge	7.7
Fall River	8.7
Framingham	8.6
Holyoke	8.1
Lawrence	8.2
Lowell	8.4
Lynn	9.1
Malden	7.2
New Bedford	9.9
Newton	7.5
Pittsfield	10.8
Salem	8.4
Somerville	8.4
Springfield	9.0
Taunton	9.1
Worcester	8.7
Rhode Island	
Pawtucket	9.9
Providence	8.4
Woonsocket	9.7
Connecticut	
Bridgeport	8.0
Derby	10.5
Hartford	9.2
New Haven	7.9
New London	9.2
Norwich	10.1
Stamford	9.7
Waterbury	10.3
New York	
Albany	10.1
Amsterdam	8.0
Auburn	7.5
Binghamton	7.8
Buffalo	6.3
Cohoes	10.0
Elmira	6.9
Glens Falls	13.3
Hempstead	8.4
Mt. Vernon	7.4
Newburgh	9.3
New York City	7.7
Niagara Falls	8.2
Rochester	5.5
Schenectady	7.3
Syracuse	6.9
Troy	10.8
Utica	6.9
Watertown	11.6
Yonkers	7.8
New Jersey	
Atlantic City	9.5
Bayonne	9.2
Bloomfield	8.3
Burlington	9.6
Camden	10.7
Dover (N. J.)	12.0
Elizabeth	8.6
Hackensack	6.4
Hoboken	8.8
Irvington	9.2
Jersey City	10.5
Jersey City Hts.	8.6
Newark	8.1
New Brunswick	8.7
Orange	7.7
Passaic	7.7

*Includes influenza-pneumonia experience of all policies "in force" in districts having their offices in specified cities. District terri.

TABLE 7.—*Continued.*

CLAIM RATE PER 1,000 POLICIES (ANNUAL BASIS).

Influenza-Pneumonia During Period October, 1918 to June, 1919.

Area	Influenza-pneumonia claim rate per 1,000 Oct. '18 to June '19
By Cities (cont.)	
New Jersey (cont.)	
Paterson	9.4
Plainfield	10.4
Red Bank	10.3
Trenton	11.2
Union Hill	7.0
Woodbury	11.0
Pennsylvania	
Allentown	7.8
Braddock	12.3
Chester	10.1
Harrisburg	9.2
Johnstown	7.2
Lancaster	11.8
McKeesport	11.6
Millvale	12.0
New Castle	8.0
Norristown	11.4
Philadelphia	11.0
Pittsburgh	11.9
Pottsville	23.1
Reading	10.2
Scranton	10.6
Uniontown	10.3
Wilkes Barre	13.3
Williamsport	12.3
Ohio	
Akron	6.5
Canton	7.5
Cincinnati	7.9
Cleveland	6.7
Columbus	6.0
Dayton	5.5
Elmwood Place	8.3
Springfield	6.1
Steubenville	9.1
Toledo	4.6
Youngstown	9.0
Zanesville	7.1
Indiana	
Evansville	6.1
Fort Wayne	4.1
Indianapolis	6.1
Muncie	5.6
New Albany	6.0
South Bend	6.5
Hammond	—
Illinois	
Alton	7.5
Belleville	7.4
Carbondale	7.2
Chicago	5.9
East St. Louis	6.9
Peoria	9.4
Quincy	7.3
Rockford	7.0
Springfield	7.2
Michigan	
Detroit	5.1
Grand Rapids	4.7
Wisconsin	
Bay View	5.0
Milwaukee	5.2
Iowa	
Davenport	6.1
Des Moines	5.9
Ottumwa	6.3
Kansas	
Kansas City	6.0
Nebraska	
Omaha	7.3
Minnesota	
Duluth	4.6
Minneapolis	3.7
St. Paul	5.4
By Cities (cont.)	
Missouri	
Kansas City (Mo.)	5.8
Moberly	7.1
Poplar Bluff	10.1
Sedalia	7.3
St. Joseph	6.1
St. Louis	5.9
Delaware	
Dover (Del.)	10.2
Wilmington	13.1
Maryland	
Baltimore	9.6
Cumberland	14.0
Hagerstown	11.0
Havre de Grace	8.1
Dist. of Columbia	
Washington, D. C.	9.1
Virginia	
Norfolk	7.5
Richmond	8.7
West Virginia	
Clarksburg	7.6
Wheeling	9.3
North Carolina	
Charlotte	10.8
Greensboro	7.3
Raleigh	9.5
Georgia	
Atlanta	6.0
Augusta	7.5
Columbus	6.5
Macon	6.6
Savannah	6.3
Florida	
Jacksonville	7.6
Alabama	
Birmingham	7.5
Mobile	7.7
Kentucky	
Covington	8.1
Lexington	7.2
Louisville	7.4
Paducah	8.0
Paris	8.4
Tennessee	
Chattanooga	8.7
Jackson	7.5
Knoxville	4.7
Memphis	7.1
Nashville	7.3
Arkansas	
Little Rock	4.5
Louisiana	
New Orleans	10.3
Utah	
Salt Lake City	4.5
Washington	
Seattle	4.2
Oregon	
Portland	4.0
California	
Los Angeles	5.9
Oakland	6.4
San Francisco	6.2
San Jose	8.2
Canada	
Hamilton	6.3
Montreal	8.0
Ottawa	11.5
Quebec	8.5
Sherbrooke	12.8
Three Rivers	11.1
Toronto	5.8
Vancouver	6.1
Winnipeg	4.9

among white lives and from 23 to 42 among colored. This marked change in the puerperal death rate followed directly from a large number of accidents of pregnancy and accidents of labor which were induced by the influenza attack.

The following table shows the facts with reference to the changed mortality in the two corresponding quarters of 1917 and 1918. But, it must not be assumed that the figures are complete or conclusive. It may well be that some of these diseases, like Bright's disease, do not as yet show the effect on them as the result of the influenza epidemic, but that it will require a longer period, perhaps years, to show what the impairments of the kidney, which physicians report as common in their practice, had on the death rate from renal diseases.

TABLE 6.

DEATH RATE PER 100,000 FROM NON-INFLUENZAL DISEASES.

Last Quarters of 1918 and 1917 Compared by Color.

Cause of death	White		Colored	
	Oct. to Dec. '18	Oct. to Dec. '17	Oct. to Dec. '18	Oct. to Dec. '17
Typhoid fever	14	13	29	28
Measles	2	3	—	1
Scarlet fever	3	5	—	—
Whooping-cough	11	5	14	8
Diphtheria and croup	27	36	6	13
Tuberculosis—all forms	162	143	335	378
Tuberculosis of the lungs	149	131	309	349
Tuberculous meningitis	6	6	7	10
Meningitis	7	6	6	7
Cerebral hemorrhage, apoplexy	60	63	92	98
Organic diseases of the heart	154	130	217	211
Bright's disease	75	90	138	154
Total puerperal state	55	15	42	23
Puerperal septicemia	6	6	10	12
Puerperal albuminuria and convulsions	5	4	7	5
Other diseases and conditions of the puerperal state	43	5	25	6

INFLUENZA-PNEUMONIA EXPERIENCE IN VARIOUS PARTS OF THE UNITED STATES AND CANADA.

At the present time we can also offer some statistics showing the comparative death rates from influenza-pneumonia in the several main geographic regions of the United States and in Canada, for the period October, 1918 to June, 1919. The mortality rates are expressed as "claim rates," that is, the number of claims from influenza-pneumonia paid during this period per 1,000 policy-years exposed to risk. Thus, for the total company experience of this nine-month period, there was an influenza-pneumonia claim rate of 8 per 1,000. In the United States the figure was 8 and in Canada it was 7 per 1,000. Considering the experience according to broad geographic divisions the New England, Middle Atlantic, South Atlantic and West South Central States showed a rate of 9 per 1,000. The East North Central, West North Central, Mountain and Pacific States each recorded a rate of 6 per 1,000. The group of East South Central States registered a rate of 8 per 1,000. Considering individual states, Pennsylvania and Delaware showed the highest rates, 12 per 1,000, with New Hampshire and Vermont, Maryland and Louisiana following with rates of 10 per 1,000. As a general conclusion from these statistics of influenza mortality by states it may be said that the highest rates were experienced in those states having port cities and the least for the inland states.

In Table 7 we give not only the data for the geographic divisions and for states but also for a number of the leading cities in each of these states. While the data are given for the state of Colorado and for the city of Denver, no importance should be attached to the rates because the lives represented were but recently insured and were consequently limited to those ages where influenza affected the population most. This makes the rates for Colorado non-comparable with those for other states where the age and sex distribution of the outstanding policies conforms more nearly to normal.

POPULAR HEALTH EDUCATION IN CHINA; A MOVEMENT ADAPTED TO THE PSYCHOLOGY OF THE PEOPLE.*

It took an American, Dr. W. W. Peter, to break down the conservatism of the Chinese in matters of health and hygiene. He accomplished this because he understood the psychology of the people. Rattling toys and fascinating gimcracks furnished ammunition for a great health education campaign, continued today by Dr. S. M. Woo.

WHILE the AMERICAN JOURNAL OF PUBLIC HEALTH is concerned mostly with health administration in this country, still it cannot afford not to give occasionally a glance over matters of health administration in other parts of the world. One of the most interesting and important of these movements has been that which has undertaken the attack of diseases in the oriental stronghold of China. It is of a great deal of interest to see how American initiative with a keen study of the psychology of a nation has fitted its means to the vivid imagination of an Eastern populace. Here, rattling toys, tinkling bells, moving dolls and fascinating gimcracks appeal to the Chinese and teach them lessons in sanitation, just as the sketchy cartoons, sprightly posters, and stirring setting are catching and holding the attention of the French. This has been done by W. W. Peter, M. D.

It is a stupendous task even in a friendly country of the same race, as in France, to undertake the campaign that is under way against tuberculosis and infant mortality. Think, then, what it must mean in courage and conviction to undertake a warfare against many diseases in a country of different race, of totally different ways of thinking, and with a language that is practically impossible save to the tongue that has practiced its modulations in infancy. China and its neighboring lands in Asia form the vast storehouse of infection from which great epidemics sweep in waves across the globe.

Smallpox and cholera and plague, before whose very names the continent of Europe has trembled, have their homes here in a congested country, with sanitation playing no part of the public policy. It is a country whose population has never really been counted, where births and deaths go unrecorded and where statistics have still to make their entering wedge. With a people secluded from the world till yesterday, where conservatism has been the prevailing spirit, where the tracks of the first steam railway were torn up by an infuriated populace, one wonders who has had the temerity to knock at the door.

But the knocker has been vigorously plied and by Americans. Fortunately China has wise men in control who have opened the door from their own side, so that today there has been initiated a health education campaign, conducted by Americans whose progress through the Flowery Kingdom reads like romance.

Three important factors have contributed to the innovation, the National Medical Association, the Chinese Medical Missionary Association and the Y. M. C. A. The first-named is the "American Medical Association" of China, and every physician in this country knows what

*Prepared by the Associate Editor from notes of personal interviews with Dr. W. W. Peter. For the illustrations the JOURNAL is indebted to the International Commission of the Y. M. C. A.

that means. It includes the younger and progressive blood of the Chinese medical fraternity who practice Western methods. It is young, it has its own way to make, but it has given a helping hand to the campaign for public health. The Medical Missionary Society is composed largely of Easterners and the Y. M. C. A. is an outgrowth of the great American Association, a well-established institution with several hundred local secretaries, all Chinese. It saw in the new movement the promise of splendid results and it agreed that it would finance the experiment. It has fulfilled its word, the experiment has borne the richest fruit, and the United States must be interested to see to the continuance of the work.

The fundamental plan of the campaign is prevention through education, and it has been the task of the movement to evolve the methods of education. This has been done by a reversion to kindergarten illustrations. The Jacob's ladder has been an important demonstrator, that fascinating toy which with the jumping jack and monkey on the stick, now given over for the iron auto and erector units, amused the children of a generation or two ago. For those not familiar with the ladder, it may be described as a number of short slats of wood held together by bonds of tape or string. These bonds permit the slats to hang below one another in a vertical plane. When the top slat is given a half-turn along its horizontal axis, the tapes permit the other slats to drop one after another till all have assumed the new position and expose the other side to the spectator. A picture or set of words or letters is fitted to each side and this is changed when the clattering, zigzag dropping of the slats takes place.

The moving spirit in establishing this work was Dr. William Wesley Peter, B. A., M. D., a citizen of the United States. His presence in China was that he might serve as a medical missionary among these people. At the language school in China, the Y. M. C. A. gave lectures with experiments, addresses by eminent scientific men, and some of the topics



The members of the last of a series of health meetings in Peking. Dr. Peter (to the left) and the American Minister to China, both in the middle of the front row, are surrounded by highest Chinese dignitaries.



Stage set for an illustrated lecture. To the left are the Jacob's ladders, indicating death rates; centrally overhead are the bell and clockfaces giving the toll from tuberculosis; below are the figures turning wheels, those to the left by correlated effort revolving all China; in front are the tables showing density of population; above to the right is the chain with the weak link; below are heads showing effect of good and bad methods of living, and the tuberculosis doll.

were light, heat, and electricity. Hearing this, Dr. Peter said one day, "Why not have a lecture on health?" From this casual inquiry has grown the great work of which he was the leader. About a year ago, he returned to this country to perfect himself in certain studies, and while here was requisitioned by the International Health Board for the carrying forward of some of its important projects. His work in China has been continued by Dr. S. M. Woo.

In China the toy persists, and Dr. Peter has made of it a spectacular illustrator of mortality rates. On one side of a Jacob's ladder the slats bear the name in Chinese characters, America, Europe, India or China; and on the opposite side, on each slat, one skull, typifying one death. Before an Oriental company the toy is held aloft and the legend tells of a country; with a turn of the wrist it is reversed, and with a clatter the skulls appear. For America there are fourteen slats and fourteen skulls; every one in the audience can count them, a mortality rate of fourteen per thousand. India, with its longer ladder, tallies thirty-five, while China, with still greater showing of skulls, rattles down to forty.

This is a striking illustration, which needs no mathematics; the short tally of skulls and the long one—so long that the lecturer must mount upon a box to keep it clear of the ground. How excellent a study in psychology is this appealing by a toy to the Chinese, "childlike," as Bret Harte has characterized him! And the question follows, "Why? You are proud of your China, but here is this. Why is it?"

Various illustrations in demography employ tables, ordinary Chinese living-room tables. By some necromancy little wooden men are pushed up through trapdoors by secret springs, in combinations and in the twinkling of an eye. The Orientals love the magician. Here is a table that counts; it can tell its story in density of population. It is not unusual for a spectator to say that these statistics are all very well, but it is foolish to compare countries like America or the nations of Europe with forty or fifty or one hundred millions only, with thickly settled China and its five hundred millions. "Let us see what the tables tell," says the lecturer, and behold for England forty dolls, representing forty persons to the square li jump with a common impulse into view. For India there are twenty, for little Holland, fifty-three, and for Belgium before the war, seventy-three. Then comes China's turn and from its own decorated table top there rise eleven little wooden Chinese figures. The thickly settled provinces show twenty-three. "But, how about Shantung, with its many millions?" and out come fifty-nine puppets to tell the story. It is thus that the auditors express their interest and help the speaker, who ranges the seventy-three Belgians against the eleven little Chinamen and says, "in Belgium, the most thickly populated country on the earth, public health has done things."

The doll or manikin appeals to the older Chinese as it does to our children. Here is one dressed in conventional fashion. It is weak and shrunken, its head droops on its chest and is withal flat and flabby; it is the sick China of now. Let us apply therapy; the figure straightens itself up; let us furnish education; the shrunken head of the figure through the magic influence of compressed air judiciously used, expands; let us apply moral training and the gleams of intelligence and rectitude shine out through the figure's eyes.

Still another figure, a manikin, again sick China, is bending under his burdens, for he has heavy packs. These are tuber-

culosis, cholera, plague, and other preventable maladies. The greatest burden of all is lifted from him and he straightens up a bit—the pack is unrolled—it is tuberculosis, and as the assistants lift it to carry it out back through the flowing curtains, the people read the name. One after another the packs are lifted and the manikin is more and more erect. With great ceremony they are unrolled and the boxes held so that the names are read before they disappear. "Now, would you see magnificent China when it has put these preventable diseases under its feet?" queries Dr. Peter, and with the murmurs of assent the silken curtains part, and there on the pyramid of conquered diseases stands the most perfect specimen of manhood in the city, usually the physical director of the local Y. M. C. A. gymnasium, and over him waves the flag of China. "Is this a picture of what China might be, or am I wrong?"

A variant is the race of the nations with the stage for the track. Some one familiar to the company, perhaps a beggar from the street corner, impersonates China. He is loaded with the burdens of disease. America is there, with its proportionate burden, and France and Japan. Most of the company have never seen a race. The lecturer dramatically draws with chalk the starting line and arranges the tape at the finish. It is done openly and with much ceremony. There is interest and excitement attending every movement. He lines up the men, he tells them what they must do, how they must start, he explains his count, "one, two, three, go," and he counts again for the real start with the excitement of the audience at a maximum. Of course China comes in last, and there is no need to explain to the company the reason.

Then there are the automatic graphic diagrams, where by themselves the lines unroll to their proper place, a quiet bit of mystery. This one shows the percentage of educated people in the countries. The lecturer cries, "America," and a great length of ribbon flows up and forms one of those columns that statisticians love to juggle with; England and the



The arrival of the wheelbarrow outfit in a Chinese city. It has drawn up before the door of the local Y. M. C. A.

countries of Europe likewise unroll themselves and make a goodly showing.

"And now, China," says the lecturer. China starts; it is slow; it creeps along a little way; it stops. "The machine is broken," mutters one of the spectators, and the lecturer sadly shakes his head, while another auditor speaks, "It is true, we are at fault. We must make our nation strong with schools."

The outfit that Dr. Peter took with him in his journeys to lecture through China and which is in use by Dr. Woo, forms to Western eyes a quaint procession. There are five of the big wheelbarrows that carry altogether two and one-half tons of stage fittings and apparatus.

These five great barrows with their enigmatical loads excite as much attention in a Chinese city as the circus elephant does here in a country town. The platform of the auditorium has a mystical look. There are curtains that hide things, there are queer devices, some of them familiar to Americans, the bell that clangs for every death from tuberculosis, the clockface that registers the total and the figures in their endless procession to the grave. There are busy little workers toiling in turning wheels; they accomplish nothing, for they work alone; there is another group working in harmony which revolve great China by their correlated efforts. Pyramids are built on the stage, always with deliberation and ceremony. Their elements have in them the contacts for an electric light. The capstone is lettered, "National Health," the lower stones bear legends, "Money," "Good Laws," "Education" and at the bottom, the largest and most important, "Public Opinion." When that is in place the light shines forth. Then there are chains with strong links and weak links.

Every item is psychologically fitted for Chinese appreciation, and with this array, helped by men who turned the Jacob's ladders or removed the packs from China's back or drew aside the curtains, Dr. Peter addressed his auditors and found his way to their intelligence, "An American," they said "but with a Chinese heart." And in this way he has stood before 110,000 of China's best citizens telling them in language that they can never forget the simple principles of good health.

Every factor is focussed to its work and so cunningly and so picturesquely withal, that could a good theatre manager once get hands on the outfit he would never let it get off his circuit. Not only has the platform the charm of that of the necromancer, bright with silken banners, inscriptions in Chinese and English, masking curtains, half-drawn, yet concealing something which presently produces some surprising effects, but the meetings have been planned with all the care of a social function. The city authorities are invited to form a committee, they are notified that there can be only three meetings a day for the six days, and those who do not come will lose the opportunity. Local authorities give the schools a holiday in which to attend the lecture, and admission is strictly by ticket. Thus it is that crowded houses followed Dr. Peter everywhere.

This experiment has been continued by Dr. Woo, educated in the United States, and on him the executive work now falls. He himself has lectured to more than one hundred thousand auditors.

After the picturesque introduction there is follow-up work on the American plan and it works. Imagine the Chinese popping into a vacant store to view an exhibit of anti-tuberculosis information, but they do just as easily as the Gothamite into an exhibition on Fourth avenue

or 23d street. Imagine the Chinese entering a National Health Essay Contest with gold and silver medals for the prizes. It was Mr. Yang Tuk-Pan who headed the fifty-one essays submitted, two of which were by women. "The history of the world shows," writes Mr. Tuk-Pan, "that disease has been a most potent factor in national deterioration. It is now clear to the minds of all the educated people of the world that the most potent factor in the decline of Egypt, Greece and Rome was disease." And he gives the remedies, good, sensible, American remedies—education, boards of health, industrial hygiene, vital statistics, public health education and social service organizations. What essayist in an American medical college could sense the needs any better?

Then there is much done in administrative work towards local organization, and much with the lantern-slide outfits and exhibits, and much beyond in plannings for the future.

Enough has been said to show the importance of this anti-tuberculosis, public health campaign, which is marching steadily forward in China towards a modern realization in that country of the methods and advantages of modern public health.

THE HEALTH OF THE COLLEGE.

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Colleges are generally weak in public health administration, according to this author. Standards for milk and water supplies are low, ventilation is a closed book, supervised exercise is usually wanting, personal hygiene instruction is not followed up, and off-campus living is little supervised. Here, where example is needed, health administration is often hap-hazard, usually inexpert. : : : : : :

BOTH within and without the ranks of educators there has always been a discontent with the results of the practice of education, stronger perhaps than that felt toward any other of our necessarily imperfect human institutions. Uninspired vocational and technological training on the one hand, and on the other, ornamental incrustation with learning and social culture masquerade as education. In both, the essence of education is absent. In both, the ideal of education as a guidance of individual unfolding, physical and mental, is often forgotten in the striving for material success, scientific advance, and academic pose.

The world has had its revival of learning. May it not be hoped that we are approaching another renaissance—a quickening of education from its commercialism and formalism into active accord with the ideals of the leaders of educational philosophy, and with the lessons of modern biology.

Education, in the light of these ideals and these lessons, is the arrangement of the conditions of normal human growth. Normal growth is the complete and balanced development of the whole

human being leading to his greatest usefulness. The problem of normal human growth and its conditions is fundamentally biological. It merits a high place as a problem in pure science and its practical solution is the most important task that confronts humanity. Its solution should centralize and coördinate the teaching of all special lines of knowledge and bring them into true relation with individual evolution.

The most obvious defect of educational practice has been the unreasoning neglect of the physical basis of life. Not but that a hideous and diseased superstructure may be erected on the most admirably developed physical basis, witness the moral, preceding the material downfall of Prussia. But certainly no building can be complete, symmetrical and safe, whose foundation is insecure. The headway made in the secondary schools by physical education and medical prophylaxis in redressing the balance does not come into this discussion. In the college the apparently deliberate trend in personal example and in general influence pursued by learned faculties has been toward an academic community of spirits, with a mere tag or vestige, for purposes of identification perhaps, of "man's flesh . . . to coop up and keep down on earth a space that puff of vapor from his mouth, man's soul." Fortunately this trend of the educational oligarchy has been more than offset by the instinct of youth toward organization for contest, recreation, and physical development. This instinct has been reinforced and capitalized by the art of physical education and by the new science of personal hygiene, the material complement of education—new because shorn of the absurd folk-lore that has characterized it in the past and because established conservatively on a basis of biology.

As a result of such reinforcement, in some instances shared or initiated by the college infirmary staff, the importance of a high standard of health for both student and teacher is being thoroughly advertised (strange though it is that there should be any need of argument), and some practical progress has been made. But now that the world is so rapidly awakening to the value of health as the prime natural resource, the college and university must be content with nothing less than taking an exemplary stand in sanitary administration.

Studies have already been made of the status of physical education, hygiene, and sanitation in American colleges. (Sibley, 1915; Meylan, 1908, 1910, 1912, 1916.) In one of his reports Meylan (1908) says: "A definite responsibility rests upon every college and university to provide a sanitary environment for students, officers and employees of the college community."

It would seem desirable to go further than this and say that the college community is entitled to a quality of health protection at least equal to that provided by the most efficient example of municipal sanitary administration, with certain additional features obligatory upon the college in particular. To picture the status of college hygiene and sanitation as reported by the teacher of physical education, the medical practitioner, and the sanitary biologist, the Department of Hygiene, Wellesley College, requested the coöperation of the physical directors of the 73 American colleges and universities listed by the Carnegie Foundation and one other. A brief set of enquiries was sent with the request that all the questions under their jurisdiction should be answered and that the questionaire then be passed on to the college physician and other officials who might be able to supply information outside the field of the

physical director. Sixty-one, or 82 per cent, replied—22 from men's, 6 from women's, and 33 from coeducational institutions. To the latter two questionaires were sent. In 16 cases both were returned. In 11 cases only the physical director of men, and in 6 cases only the director of women replied. The total number of questionaires returned was 77.

The percentages referring to water supply, sewage disposal, stables on campus, protection against flies, use of common towels and cups, and sanitary administration, are on the basis of the total number of colleges heard from, 61. In dealing with the subjects in which the conditions for men and women are different, the percentages are based on the total number of questionaires returned, 77. When the percentages under a given question do not total 100, it is to be understood that the remainder represents the percentage of failures to reply.*

The questions were arranged under six main heads:

I. Physical entrance requirements.
II. Personal hygiene—instruction, exercise, etc.
III. Medical care and prevention of illness.
IV. Sanitation of college plant.
V. Supervision of students' living conditions off campus.
VI. Administration.

I. Physical Entrance Requirements.

Extent.—The purposes of such requirements are four. First, to set a standard as high as practicable and thereby shield the college from transmissible disease, and to prevent the lessening of efficiency in the class room and the loss of time and money to the student when the latter enters only to withdraw sooner or later on account of physical incapacity without any substantial accomplishment to his credit. Second, to encourage secondary and grammar schools to pay more attention to the development of sound physique. Third, to classify students as to their capacity to enter into the more vigorous sports. Fourth, to obtain a measure of the entering student's physical development that will serve as a guide for future physical education, for possible limitation of academic program, and in general for the proper ordering of his whole college life for his best interests.

Three quarters of the departments of physical education who returned the questionaire require a physical examination of all entering students. The reasons given for exemption seem in some cases scarcely adequate, and in some, irrelevant. Four colleges give no physical entrance examinations whatever.

Number of examiners, number of candidates handled per examiner, and time devoted to examination.—In one fifth of the cases where there are physical entrance requirements, three or more physicians are employed. The average number of candidates handled by each examiner is, however, substantially the same in the group providing three or more examiners as in the group providing less than three, 146 and 149 respectively. The range covered by these figures is far too wide to indicate uniform efficiency—from 34 to 828 students per examiner. The figures are based on the records of numbers of entering students handled in 1916 by 64 out of the 77 staffs that returned the questionaire.

The time devoted to the examination is, of course, an important element in its effectiveness, the latter being greatly lessened by protracted periods. In the

* Data collected and tabulated by Marie L. Carns, B. A., graduate of the Department of Hygiene, Wellesley College, 1918.

case of 55 returns it was possible to compute the average number of entrants per day per examiner. The relation between these figures and the period of time required for examination is given in the following table:

Average number of entrants per day per examiner.	Period of Examination—Days.					
	4–10	11–20	21–30	31–40	41–50	Totals
1–3	0	1	3	1	4	9
4–6	3	4	4	8	3	22
7–9	1	5	4	1	0	11
10–12	1	3	0	0	0	4
13–30	3	4	1	0	0	8
31–48	0	1	0	0	0	1
Totals	8	18	12	10	7	55

The upper right and lower left corner of the table give the least desirable combinations of length of examination period and number examined. The optimum position on the table is probably column 1, lines 3 or 4—the staff of examiners so scheduled on the above table is large enough to complete the work in a reasonably short time, 10 days or less, each examiner handling from a half dozen to a dozen applicants a day.

The fact that only 30 per cent of the departments replying had physical examination forms to send does not speak well for the value of the examinations.

Orthopedic examination.—Orthopedic examinations are given according to 72 per cent of the replies. In 78 per cent of the cases where such examinations are given, no posture tracings or photographs are given to the student to stimulate him to improvement.

Basis of exclusion from college. Numbers excluded. Amount of restriction of program compelled. Dental and visual examination.—Although practically all the colleges advertise physical examination, either no bar against entrance is set, or no definite statement is made, or no answer is given in 58 per cent of the returns. In other words, in more than half the departments replying the examination is insisted on but the "books are not read."

Further illumination is supplied by the figures which show that during the last five years, according to three quarters of the replies, either no entering students have been barred for physical disabilities, or no record has been kept, or no reply is made. If to this number is added the number of departments which have not barred more than six candidates (of the thousands admitted) in the last five years, the list includes 90 per cent of the departments which replied.

Objection may be made that exclusion from college can, at present at least, be only a very minor object of the physical examination; that the college has neither the right nor the obligation to exclude any but the very exceptional cases. If this objection is sound, restriction and regulation of physical and mental program becomes the principal reason for the examination. During the past five years there has been either no restriction of academic program, or no record of any such restriction, or no reply to this question is made, in 90 per cent of the returns.

Dental and visual examinations are indicated in about one half and three quarters of the returns respectively. This can hardly be called a good showing. Furthermore, the examinations are not given by specialists in 56 per cent and 65 per cent of the departments replying, respectively, a large number not answering the question at all and therefore probably to be included among those which do not have dentists or oculists for these tests. Making this supposition, 96 per cent and 91 per cent respectively do not have the tests made by specialists. There

may be differences of opinion as to the practicability of special examination for dental conditions, but it would seem that for students, among whom without doubt much damage to health is wrought by visual defect, a more thorough examination, or re-examination in the case of those who already wear glasses, should be provided, than can be made by the general practitioner in the course of his rapid general survey.

II. Personal Hygiene—Instruction, Exercise, Etc.

Exercise.—Gymnastic instruction has reached the point of being required in a little more than 90 per cent and additionally or solely elective in 69 per cent of the departments of physical education.

Participation in athletics is required according to a little more than half the returns. From a hygienic point of view general enjoyment of this form of exercise is at least as important as general instruction in gymnastics. There has always been a question as to the best course to pursue to make regular, vigorous exercise universal among students. Individual influence exerted on those who need it but are disinclined toward it, and intramural and sanely managed intercollegiate contests can be made to create a student conscience in favor of outdoor life and physical fitness. Play, compulsorily and mechanically scheduled, is likely to become a travesty, since the essence of the benefit of athletic exercise is spontaneous enjoyment.

The percentage of affirmative replies reached its lowest point in the matter of restrictive and corrective gymnastics, only a third of the returns indicating that such work is done, 38 per cent not heard from. From the internal evidence in the replies on this point it would seem that there is great diversity of opinion as to the definition, significance, and importance of such work.

The fact that careful examination of candidates for major sports is a needed protection against serious and sometimes irreparable damage to health has been much discussed. It is generally believed that most of the large colleges are sufficiently watchful. The above figures show that according to more than three quarters of our 77 replies, such examinations are given, with only two institutions, not heard from. But the showing should be even better.

One fifth of the questionaires report no special provision for exercise by the teaching staff. Perhaps the wonder is that the number is as small as it is. Of the 75 per cent who do make such provision, over half report that little advantage is taken of it, or that not more than 10 per cent of the teachers make use of the opportunities offered, or do not reply on the question at all. The fault is probably evenly divided between the preoccupied general teaching staff, and the staff of the department of physical education which fails both in making its argument for the complete life forceful, and in making its invitation attractive.

Instruction in personal hygiene.—The entrance of personal hygiene into the college curriculum as a required course of study is a noteworthy fact, in view of the apathy with which the subject has been regarded by academic faculties. In 1890 only six colleges required such a course (Meylan, 1910). Sixty-one per cent of the returned questionaires report such a course in freshman or sophomore years or both. However, about 13 per cent out of 61 per cent are short irregular courses ranging from six hours in one or two terms to twelve hours in six weeks, or are combined more or less informally with the practical work in physical educa-

tion. Since Meylan in 1910 reported 76 per cent of the colleges investigated by the Committee on the Status of Hygiene in Colleges and Universities in the United States as giving required courses, it is clear that progress in this direction has stopped during the past eight years. The discrepancy between 61 per cent and 76 per cent does not indicate retrogression, but a more rigid exclusion of informal courses, in obtaining the former figure. It may also be partially accounted for by the more limited selections of institutions for this study.

The percentage of cases (80 per cent) where the course in personal hygiene carries college credit is unexpectedly high. Academic standing alone, however, supplies no motive power in the journey toward success. It is analogous to payment of fare. The end of success is reached only by the power of results. Results come only through coöperation with every health agency of the college.

The natural obstacles in the way of effective health instruction are great. Too often the instructor's background is purely medical and his scope in teaching hygiene includes little but a description of imminent diseases and of the physiology and anatomy of the human body. Too often the classes are so large that lecture work alone is possible, and the likelihood of getting a concrete reaction aside from any specious emotional response is slight.

A course given by a series of specialists cannot maintain a high level of interest and value. Personal hygiene is the sort of subject that strays at the slightest invitation into the regions of personal bias and medical specialty. The ideal arrangement is to have a teacher and assistants with the biological background and the point of view of positive hygiene, and small classes in which discussion is possible.

The subject matter of the course should be well knit into a consistent whole and put in the form of a printed outline or syllabus for the students' use. It should be neither too theoretical nor too deadly dogmatic. The reference books should be abundant, interesting, and chosen with strict regard to biological soundness. Lantern demonstrations help to keep the subject matter of the course in live touch with modern sanitary progress, and to drive home the facts of the special personal and general economic value of health. When the classes must be large, short written quizzes at the end of every other appointment, make the problem of judging the students' progress easier and fairer. This necessitates a corps of assistants to read and correct the answers and consult with students whose interest needs stimulation. Finally, the course, to show demonstrable results, must be correlated with the remedial work of the college by means of morbidity statistics and records of physical development and must be reinforced by individual conferences with students in need of advice. In fact, the illustrated statistics of fluctations in college public health and of improvement in students' posture, strength, and skill, is most valuable material to include in the course itself.

It is not easy to see why, with college students, there should be any neglect of the presentation of the biology and ethics of sex. Fourteen per cent answer the question negatively and thirteen per cent not replying, are probably in the same category.

III. Medical Care and Prevention of Illness.

Over half (57 per cent) of the returned questionaires report "no infirmary." In about half the cases where there is a college infirmary, are patients treated by private doctors required to report to the

director of the infirmary or to other college authority.

The college hospital may be conducted as a hygienic and prophylactic institute to which students are encouraged to bring their health problems, or it may remain nothing more than the conventional last resort of the seriously incapacitated. It is gratifying to find that in all those cases reporting a college infirmary, the question, "Is there any system of encouraging students to obtain medical advice on the slightest suggestion of illness?" is answered in the affirmative; and that in many instances the system is briefly described. On the other hand, out of the 57 per cent who report "no infirmary" 15 per cent state that no such encouragement is systematically given and 42 per cent do not reply.

About a fifth of the infirmaries have no system of following up discharged cases and about four fifths of them do not use their morbidity statistics to check up and demonstrate the effect of instruction in hygiene and of gymnastic and athletic training. Less than half (40 per cent) of the colleges record the vital statistics of their graduates.

It is to be expected that the medical officers of the college should be the leaders in adopting the practice of modern medicine and sanitation of placing health protection above health salvage. Without a doubt they do this as far as their training and their time, remaining after clinical duties, allow, and there are a few instances in which the college infirmary staff is unquestionably, on published evidence, a health institute, actively and successfully encouraging students to consult for general advice and on the initial appearance of illness, and submitting annual reports showing the trend of morbidity data. Without such data, the college moves in a world of a century ago, before vital statistics, the bookkeeping of health and disease, existed. The motto of the college hospital staff might be—"skilled in cure, interested in health."

IV. Sanitation of the College Plant.

Water supply.—Only 15 per cent of the colleges have their own supply separate from that of the city or town in which they are located. Of the other 85 per cent less than half (37 per cent) make any sort of sanitary examination. And of those making any kind of an examination, only about a third (31 per cent), or one eighth of those sharing their supply with the town, specify a bacteriological examination. One college reports examination for disease germs, and another a yearly bacteriological examination!

In 62 per cent of the cases where the town water is shared by the college, there is a surface supply. In almost half of these surface supplies, the colleges concerned do not provide sanitary examinations or do not report on the subject.

In only 40 per cent of the colleges whose water comes as above described, is it filtered or treated in any way by the town. In 7.7 per cent of these cases it is so treated by the college.

Of the 15 per cent which have a separate supply, one-third (3 cases) filter it, and all make some claim of safeguarding, though in a few cases in very general and unsatisfactory terms.

Apparently the lessons of the Ithaca typhoid fever epidemic have not been sufficiently widely and thoroughly learned.

Milk supply.—One fifth of the 77 commissary departments use a pasteurized milk supply, and about the same number claim to keep track of its content of butter fat, and number of bacteria, and to guard against infection in handling. No details, however, are given as to how these things are carried out.

Ventilation.—In only five questionaires, or 6 per cent of the 77 returned, is it claimed that standards of ventilation are maintained in class rooms, offices, and dormitories.

The replies of the four out of the above five which answer the question on the nature, frequency, of the tests made, do not reflect much of the light that has been emanating from research in the field of ventilation. Some characteristic replies are: "Tests for bacteriological colonies." "Tests frequently made by Professor of Pathology." "Examination made occasionally by Superintendent of Buildings." "Tests made three times yearly by students of the hygiene course."

Swimming Pool.—Of the affirmative replies on the possession of a swimming pool, 40 per cent indicate some sort of artificial ventilation of the room in which the pool is located. In two cases it is admitted that the ventilation is unsatisfactory. It is not easy to say what should be the verdict in this matter. It would seem as though the chief point in such ventilation would be the prevention of possible excessive heat and humidity in locker and other rooms contiguous to the pool.

Three quarters of the pools are disinfected and in more than half, the water is filtered. In almost exactly half, both chemical treatment and filtration are used.

Sixty-seven per cent of the pools are reported to be examined in regard to the sanitary condition of the water. Of these reports, 20 per cent fail to say how often, 16 per cent say "irregularly," while the other replies vary from "daily" to "once," and "every two or three years." It would seem that, if infection through the swimming pool is of any considerable importance, there should be quite as regular sanitary surveillance here exercised as there would be over the filtration or storage of a suspected water supply.

It is scarcely possible to classify the replies to the question "standards set." A third of those making a sanitary examination are silent on such standards. The rest cover a wide range of requirements, one going so far as to stipulate "no pathogenic germs."

Three quarters of the replies state that the bottom of the pool can be clearly seen in all lights. In no case when women are using the pool is an unlimited number allowed in the water at one time. Safety demands regulation of numbers for both men and women, the presence of a trustworthy guard, and good visibility of the bottom of the pool.

Further data such as dimensions of pools, rate of flow of water, number of students using, etc., would be desirable to complete the picture of this phase of college sanitation. However, the data which were received on these topics were so incomplete as not to be susceptible to summary and correlative examination.

Sewage disposal.—Half of the colleges use the sewage system of the town or city where they are situated. One-sixth have their own methods of disposal, which with one or two exceptions seem to be, as far as can be judged on the superficial evidence submitted, satisfactory. The subject is not one on which light may be thrown by answers to a few simple questions, as is the case with water or milk supply. The fact that one third of the respondents do not touch on this point is a discouraging indication of the relative lack of interest in this country in this important phase of sanitation.

Stables and flies.—In three quarters of the replies there is testimony to the presence of stables on the grounds, while less than half make any claims to screening stables, kitchens, or dining rooms. The suspicion against the character of the fly

as a transmitter of disease and the knowledge of his outrageous habits have been so thoroughly broadcast that it would seem as though a better showing on this point should be made by institutions of learning.

Common cups and roller towels.—The doctrine of the perniciousness of the common cup and towel has evidently taken effect more successfully, although three colleges have the courage to admit that such utensils are permitted.

V. Living Conditions Away from Campus.

A very considerable portion of the students of many American colleges live in private houses. It is surprising to find of the colleges (each coeducational college counting as two) whose student body is thus divided, less than half assume responsibility for the sanitary condition of private boarding houses.

Of those who do not assume such responsibility (31 per cent) the percentage of students who live off-campus are distributed as follows:

Per Cent.		Per Cent.	
10	2 replies	66	2 replies
16	1 reply	75	2 replies
20	2 replies	80	1 reply
25	1 reply	90	2 replies
30	1 reply	100	2 replies
33	1 reply	No record	1 reply
50	4 replies		

VI. Administration.

Authority over physical education, instruction in hygiene, and clinical service vested in one person?—Upon far-sighted administration and coöperation, after all, depends any real accomplishment and progress in improvement in student health by normal hygienic and educative methods, and in protection against endemic and epidemic transmissible disease.

It has already been noted (Meylan, 1910) that departments of physical education have been arrogating to themselves the administration not only of didactic instruction in personal hygiene but also of clinical service and of the general sanitary situation of the college. At the present time this condition is seen to exist in so far as the first two items are concerned in one half of the colleges (coeducational counting as two) replying to our questionaire. The remainder of the table presents an array of items differing so among themselves as to be unclassifiable.

Athletic association.—Too much emphasis cannot be laid on the importance of close coöperation and sympathy between the student athletic association and the department of physical education. The effective execution of the latter's ideals for health and physical development cannot be realized unless an informing, inspiring, and convincing influence is exerted by this department upon the leaders of athletic activities. In only seven cases (9 per cent) out of the 77 replies is it stated that there is no relation between the athletic association and the department of physical education. According to 27 per cent of the returns there is an athletic council one member of which is the director of physical education. An extremely varied relationship is shown by the remaining replies.

College dietitian.—Food economics have been coming into acute prominence during the past twenty-five years, for various reasons besides those related to hygiene. When the country has been flooded with exhortation to conserve scientifically, should not the colleges make a better showing than that indicated by the following figures? In only a quarter of those cases in which dining rooms are maintained is there special service in planning and in buying, and in these cases the supervision of the work is extraordinarily diverse and for the most part

apparently inappropriate, including such officials as the dean, the president, the trustees and the cashier.

Administration of campus sanitation.—

	Per Cent.
Jurisdiction not under specialists	45.7
Jurisdiction probably under specialists, but statement not definite	14.9
Jurisdiction under city authorities	11.6
Jurisdiction not under solely medical college specialists	16.0
Jurisdiction solely under medical college specialists	11.2

As the above table shows, the amount of sanitary administration in the hands of college officers not trained in sanitation is large. There is great diversity of personnel in the governing bodies of college sanitation. Sanitation is a subject of rapid growth and many phases, statistical, bacteriological, chemical, epidemiological, and medical, and no miscellaneous group can establish and direct a working plan of college sanitation which will meet the standards of modern sanitary science. It should be unnecessary to say that this work should be in the hands of a board, primarily informed in sanitary science, and adequately provided with laboratory facilities and assistants, secondarily in touch with the various academic and business administrators of the college, who should accept and enforce its decisions, as the decisions of a municipal board of health are accepted and enforced by the town or city authorities. The largest concurrence in personnel of sanitary administration is that of 15 per cent of the colleges replying, where sanitary authority is vested in the "Superintendent or Committee on Buildings and Grounds." Next comes "Committee on Student Health"—10 per cent. Then "City Authorities"—8 per cent. The remaining 30 replies are too varied to be classified except as in the above table, and include such items as "President," "Dean," "Assistant Treasurer," "Firm of Architects," "Department of Physical Education," etc.

Concluding Comment.

At the outset we stated what would seem to be the self-evident responsibilities of the college in maintaining a certain standard of health protection. For two reasons are these responsibilities especially weighty in the case of the college above all ordinary communities. First, because, granting the college a high and influential position before the public, it must not be remiss as an exemplar of hygiene and sanitation, fields in which theory is glaringly futile when not combined with practice.

Second, the college is in a position unique in opportunities for control and education by example in health matters. Effective hygiene and sanitation must find a place in college life to prevent the large economic loss due to physical deterioration and transmissible disease at the time when soundly established health, physical and mental, and freedom from interruption are most essential to the individual's success and to his later value to the community.

On the grounds of the data reviewed in this study and in view of its opportunities, it can hardly be said that the colleges excell the best examples of municipal health administration. It cannot be that their physical standards of admission are having more than a fraction of their possible effectiveness. Arrangements for supervised and restricted exercise for physically deficient students are not made in two thirds of the colleges replying. Instruction in personal hygiene is not followed up to any extent for concrete results either by individual observation and advice or by correlation with college vital statistics. The standards for water

and milk supply are low in a large proportion of instances. Ventilation is a closed book. Off-campus living conditions are not supervised in an inexcusably large proportion of instances. Health administration proves to be haphazard and often non-expert.

The possibilities of a rapid improvement probably lie in the reorganization, or in the creation of the college health board, to supplement and correlate health instruction, medical service and college sanitation. Such plans have been much under discussion of late (Anderson, 1917; Winslow, 1916). Meylan, some years ago (Meylan, 1910) called attention to the tendency of the departments of physical education, or of hygiene, however they are called, to enlarge their fields to cover practically all of college sanitation. Local factors must determine whether the coördination of college hygiene and sanitation through the department of hygiene and physical education is the arrangement involving the least friction and productive of the best results. It matters little whether the health organization is so arranged or whether the college hospital staff, or some professional department of sanitation and public health forms the nucleus of the organization, provided there exists live coöperation regardless of precedence, and a real desire for demonstrable results. When the department of hygiene and physical education can advantageously assume this function, with it, as has been pointed out by others, should be associated the teaching staffs and the technological experts of the departments of chemistry, bacteriology, and statistics, together with the physician in charge of the college hospital. From them should come counsel and decisions which may be put into effect by the administrative officers of the college sitting as *ex officiis* members of the board. The college board of health is certainly under a moral and usually a legal obligation to work in close harmony with the local municipal board of health, especially in reporting and maintaining strict quarantine in all cases of diseases dangerous to the public health according to the regulation of the state and local sanitary code. Further, it is to its great advantage in the long run so to coöperate.

The college board of health must be alive not only to the technique of applied bacteriology and of sanitary science but to the present day spirit preached by the leaders in health conservation—the spirit which points to further progress not merely in the external enforcement of sanitary regulations, but in the education of the individual to a sense of responsibility in developing and maintaining his personal health and strength, and in protecting the health of his neighbors—a sense of actual membership in the larger board of health, the community as a whole.

These conclusions apply to general conditions in college hygiene and sanitation. The few exceptions of all-round, enlightened, and modern college sanitary organization and administration are well known. It is to be hoped that their leadership will be followed in the near future by a large majority of American colleges. The concept of national vitality has come, during the past year or two, to have a real meaning even in the popular mind. The colleges must set the pace for the lower schools and for the country as a whole in providing the training and environment necessary to the normal growth, mental and physical, of the nation's youth.

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CHANGE IN SEASONAL DISTRIBUTION OF DISEASE IN CHICAGO; AND RELATION OF INFLUENZA THERETO.

W. A. EVANS, M. D., *Chicago, Ill.*

Against a decline in prevalence of many diseases and a generally decreasing mortality in the past fifty years, the pneumonia-bronchitis-influenza rate is today higher than in 1871. It is indeed the only bacterial group of maladies the prevalence of which has not diminished.

THE 1889–90 influenza epidemic began in Chicago during the first week in January, 1890. It was at its worst during the last week of that month, but conditions did not become normal until late spring of that year. As judged by the death rate conditions remained normal until the follow-

ing winter. The epidemic returned about March, 1891, and for eight weeks the death rate was 25 per cent higher per week than during the worst week in 1890. Conditions did not become normal until late spring. Further study showed that the death rate was abnormally high until 1894 and that the excess was all due to deaths occurring during the winter and spring.

A study of the deaths in 1890–93 led me to investigate the seasonal distribution of deaths in Chicago since 1871. From this study I learned that there has

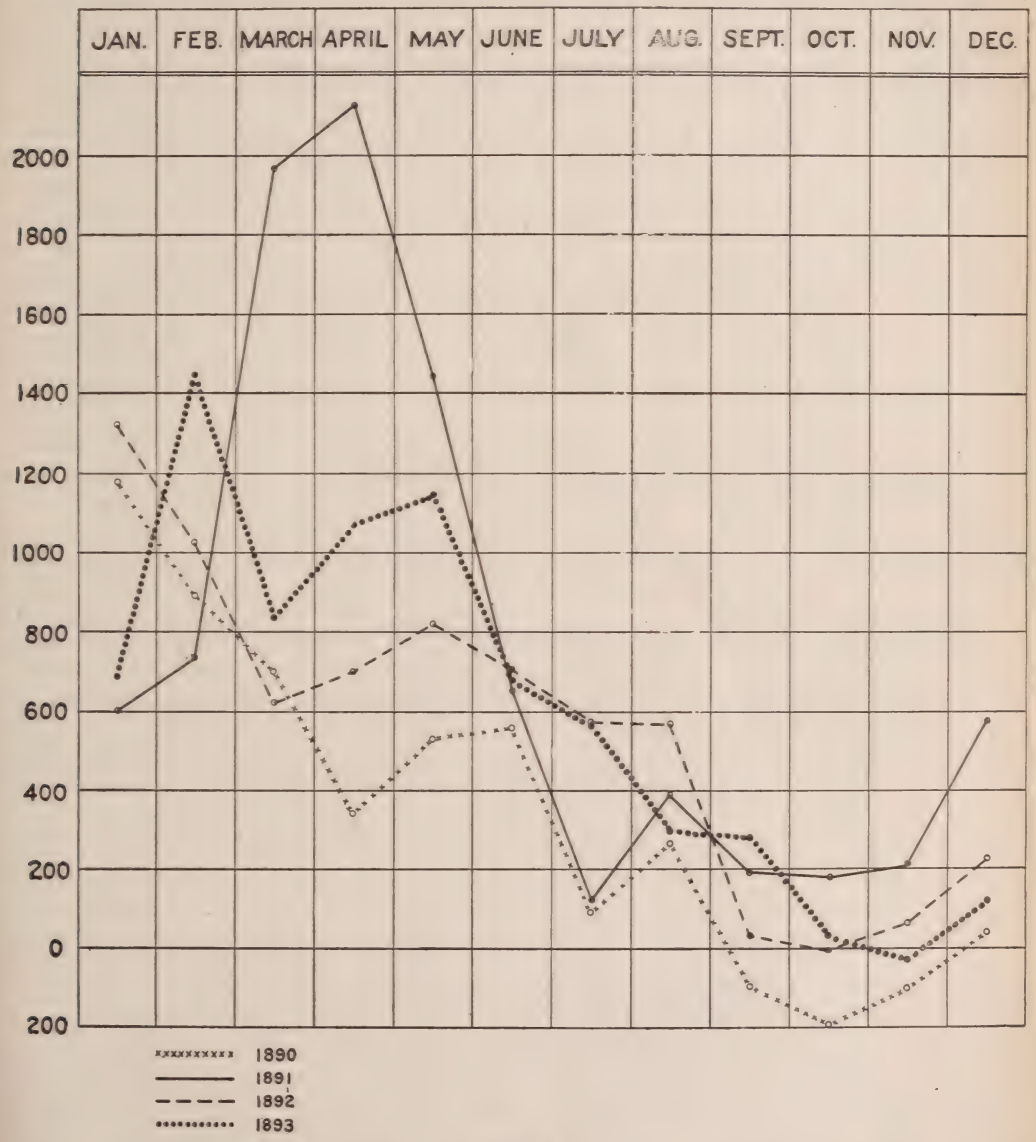


CHART I.

This chart indicates deaths from all causes by months as compared with expected deaths on the basis of deaths in 1889 plus 5.2 per cent each year for increase in population. The zero line represents expected deaths. The curves below the zero line indicate the number of deaths less than the expected number. The curves are for Chicago.

been a radical change in the prevalence of disease in Chicago during the last 46 years and that the most clearly defined step in this change was in the decade in which the 1889–93 epidemic occurred. In all probability the same change has occurred elsewhere throughout the United States, but this study covers conditions in Chicago only.

The study began with 1871 because the records for the years prior to the great fire are not very reliable. I presume for a number of years prior to that date they are reasonably accurate as to gross number of deaths a year, but not for other details. The first period, therefore, embraces only nine years, 1871–79. In order to escape the influence of the 1918 epidemic the 1910–17 period embraces only eight years.

The tables and charts dealing with change in the seasonal prevalence of disease as shown by the deaths are based on the total number of deaths. The population is approximately the same in the different months of the year and all the tables and charts are intended to convey is the healthfulness of the different months. It will be noticed that in 1871–79 in each of the first six months there are about the same number of deaths. In

TABLE I.

Average Number of Deaths Each Month by Decades—1871 to 1917 Inclusive.

	1871–79	1880–89	1890–99	1900–09	1910–17
Jan.	600	1,107	2,181	2,574	3,129
Feb.	524	977	2,010	2,446	3,061
Mar.	598	1,112	2,253	2,616	3,441
Apr.	580	1,091	2,214	2,528	3,103
May	571	1,076	2,023	2,403	2,980
June	589	1,022	1,809	1,976	2,535
July	1,201	1,623	2,443	2,245	2,732
Aug.	1,097	1,371	2,204	2,417	2,224
Sept.	782	1,115	1,880	2,249	2,650
Oct.	627	1,021	1,807	2,113	2,572
Nov.	578	1,001	1,700	2,112	2,582
Dec.	612	1,081	1,910	2,495	3,227

TABLE II.

	Winter	Summer
1870–79	4,875	3,271
1880–89	7,120	6,460
1890–99	11,845	12,595
1900–09	12,953	15,063
1910–17	16,732	18,931

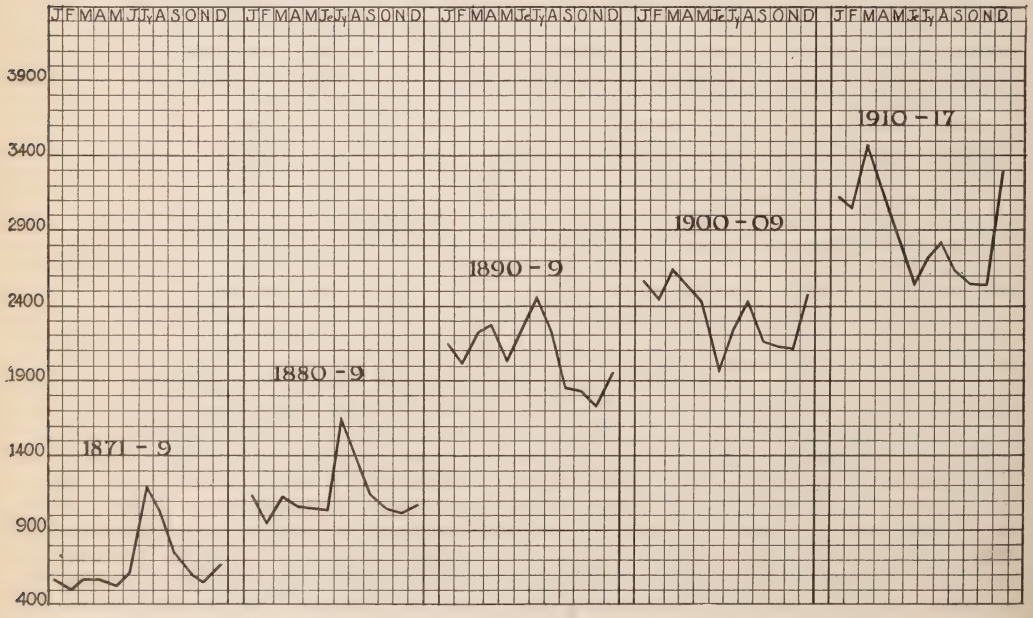


CHART II.

Distribution of total deaths by months (averages for each decade) 1871 to 1917, inclusive.

July there is a very sharp rise. August had almost as many deaths, September somewhat fewer, October, November and December having almost the same number of deaths each month as had January and the five following months. In 1880 the July-August-September curve is almost as high, but it will be noticed that there is a slight spring rise also.

There is practically no difference between the curve for 1880–89 and that for 1871–79. The curve for the decade beginning with the influenza epidemic of 1890–93 is entirely different. There is a spring rise almost as high as the July rise. August is lower than March–April and September is lower than any spring month. In 1900–09 the July-August rise does not reach higher than the May level and the December-April curve is the only real hump. In 1910–17 the March-April hump is the striking feature in the curve.

The change is best noted by comparing 1871–79 with 1910–17. It will also be seen that the most definite step in the change occurred in 1890–99. By dividing the year into two parts, June, July, August, September, October and November being classed as summer–autumn and December, January, February, March, April and May as winter–spring and comparing these seasons by decades we get another presentation of the same change.

TABLE III.

	Winter	Summer
1871	2,796	4,180
1872	4,039	6,117
1873	3,770	5,785
1874	2,982	5,043
1875	3,399	4,500
1876	3,606	4,967
1877	3,741	4,285
1878	3,247	4,175
1879	3,785	4,829
1880	4,857	5,605
1881	6,170	7,931
1882	6,833	6,401
1883	5,552	6,003
1884	5,745	6,625
1885	6,088	6,388
1886	6,572	7,127
1887	7,361	8,048
1888	7,860	7,912
1889	7,565	9,381
1890	11,501	10,355
1891	15,671	12,083
1892	13,237	12,982
1893	13,684	13,399
1894	11,280	12,612
1895	12,207	12,012
1896	11,692	11,565
1897	10,948	10,861
1898	12,178	10,615
1899	13,539	11,964
1900	13,602	11,339
1901	12,459	11,947
1902	13,830	12,625
1903	16,074	12,844
1904	14,739	11,572
1905	14,226	12,982
1906	15,255	13,793
1907	17,688	13,570
1908	16,256	14,130
1909	16,504	14,792
1910	17,500	15,741
1911	17,617	14,954
1912	18,403	15,631
1913	18,983	16,315
1914	18,932	15,020
1915	19,169	15,725
1916	19,585	21,263
1917	16,719	17,764

Table II shows the number of deaths in each season for each of the five decades.

Table III shows the number of deaths in each season for each year from 1871 to 1917.

Tables III and IV show that prior to 1890 the number of deaths was always higher except in 1882. Since 1890 the winter rate has always been the higher except in 1894.

TABLE IV.

General Mortality Rate per 1,000 of Population.

1871–79	20.88
1880–89	20.649
1890–99	18.473
1900–09	14.676
1910–17	14.775

TABLE V.

Typhoid Mortality Rate per 100,000 of Population.

1871–79	59.5
1880–89	61.4
1890–99	62.6
1900–09	22.3
1910–17	7.5

TABLE VI.

Infant Mortality Rate per 1,000 Population All Ages.

1870–79	7.24
1880–89	6.38
1890–99	5.16
1900–09	2.99
1910–17	2.77

(Note. Birth registration in Chicago is not complete.)

TABLE VII.

Scarlet Fever Death Rate per 10,000 of Population.

1871–79	7.55
1880–89	4.03
1890–99	1.85
1900–09	1.716
1910–17	1.892

TABLE VIII.

Diphtheria Death Rate per 10,000 of Population.

1871–79	10.9
1880–89	17.41
1890–99	9.34
1900–09	2.95
1910–19	3.61

TABLE IX.

Death Rate from Pneumonia, Bronchitis and Influenza per 10,000 of Population.

1871–79	15.25
1880–89	21.45
1890–99	26.21
1900–10	25.642
1910–17	21.18

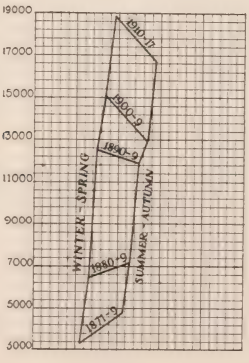


CHART III.

Average number of deaths each year of decade by season, Winter – Spring and Summer–Autumn

An analysis of some of the more important causes of death throws additional light. Since 1871 there has been a fairly regular decline in the general death rate as shown in Table IV and Chart V. Likewise there has been a decline in the death rate from typhoid fever and the infant mortality rate (Tables V and VI, Chart V). But not all the decrease has been in the bacterial diseases which produce deaths in the main in the summer-autumn season. Tables VII and VIII and Chart V show a like decline in the rates from scarlet fever and diphtheria. When we come to pneumonia, bronchitis and influenza we find another story. On account of the difficulty in diagnosing pneumonia, bronchitis and influenza these three are combined and treated as one disease.

Table IX and Chart V show that the curve for acute respiratory infections went very high in 1890 and that while it has fallen somewhat since that time, the death rate from this group is much higher now than it was in 1871–79. The only bacterial-caused disease in the entire category which is higher now is the pneumonia-bronchitis-influenza-group. Such proof as there is that the influenza epidemic of 1890–93 changed the human host indicates that immunity was conferred, not that susceptibility has been increased.

In 1918 the number of deaths of people over 50 was no greater than in 1917, 13,458 as compared with 13,497. The reports from elsewhere are to the same effect. The disease everywhere spared persons old enough to have gone through the epidemic of 1890–93. This fact was not true in 1890–93. Chart VII shows that in that epidemic old people died at a rate even greater increase over expectancy than was the case with the younger ones. A more rational conclusion is that the bacteria responsible for the

acute diseases of the respiratory tract are undergoing change and that the most signal manifestation of this change occurred in the great influenza decade of 1890.

I append Chart VI showing the death rate by months of 1918. The exceedingly high spring rise presaged the autumn epidemic. Just the relation of this rise to the October epidemic it is impossible to say. Similar rises in death rates occurring between 1916 and 1918 in different parts of the country have been termed influenza epidemics by different writers. The relation of the streptococci pneumococci to influenza will remain a fruitful source of study for a long time.

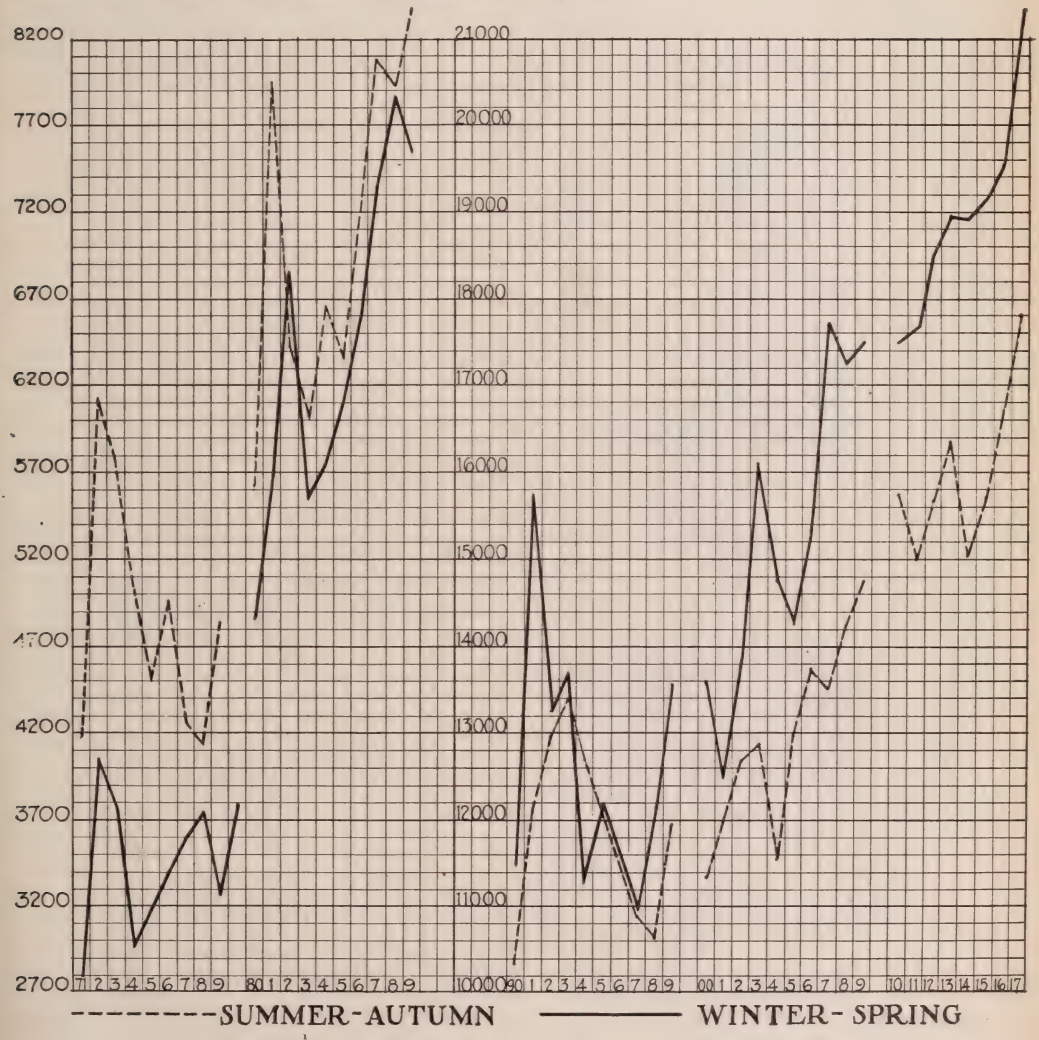


CHART IV.

Deaths by seasons, 1871–1917, Summer–Autumn and Winter–Spring.

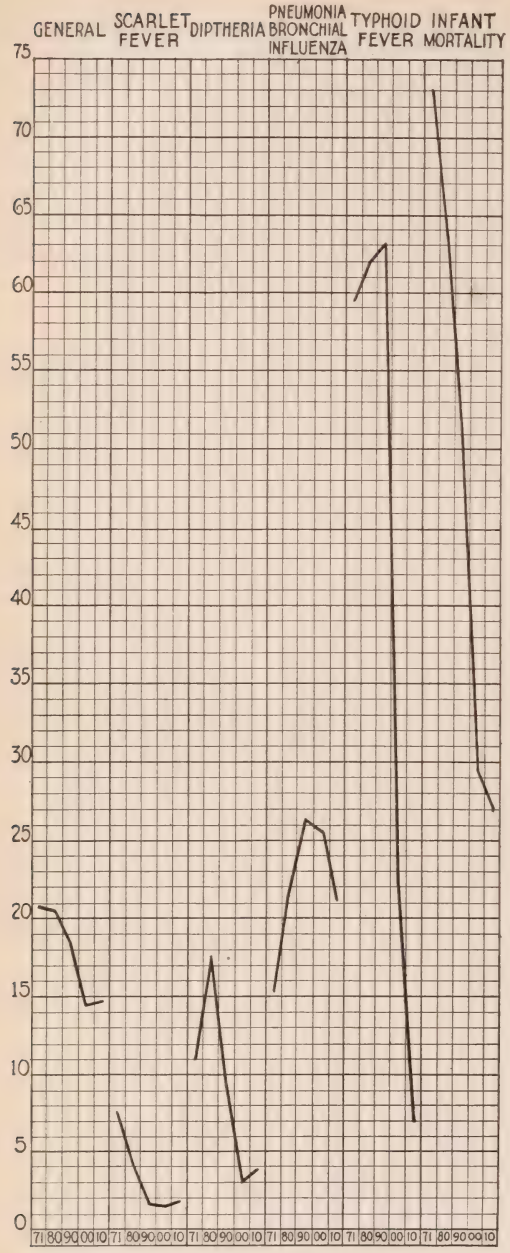


CHART V.

Curves of death rates for certain diseases. Averages by ten-year periods, 1871–1917.

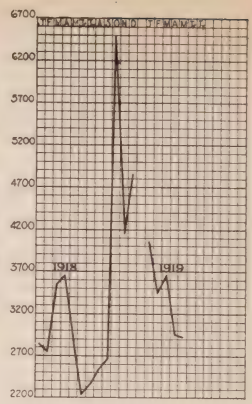


CHART VI.

Deaths in 1918–1919 by months. Exceptionally high Spring rise. Deaths in 1919 exceed those of same months in 1918.

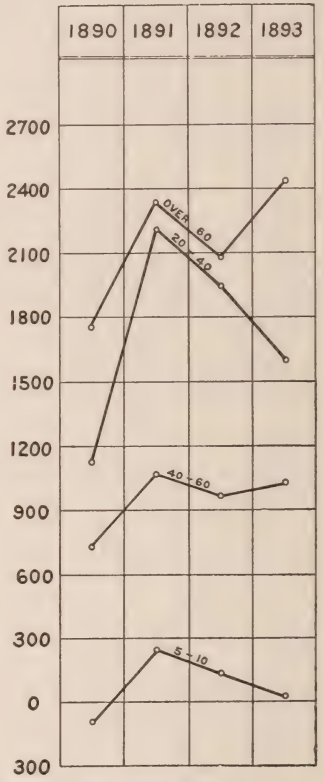


CHART VII.

This chart shows deaths for four years in certain age groups as compared with expected deaths on basis of deaths in 1889 plus 5.2 per cent each year for increase in population. The zero line represents expected deaths. The horizontal lines above zero line indicate numbers of death above the expected. Those below zero line indicate numbers of deaths below the expected. Chicago.

THE FIGHT AGAINST TUBERCULOSIS IN FRANCE.*

SELSKAR M. GUNN.
Associate Director, Commission for the Prevention of Tuberculosis in France, Paris, France.

IT is not without some hesitation that I have finally concluded to speak to you of tuberculosis, and especially of the work that is under way in France by the Anti-tuberculosis Commission sent by the Rockefeller Foundation.

There are many in France with greater authority than I have, who could treat this subject much more worthily. This is because you are, indeed, the country of of the great physiologists.

What is tuberculosis? It is perhaps easier to answer this with figures than with words. For France, alone, a man dies every six minutes, more than 80,000 a year; for the whole world, 2,000,000 human lives a year; these are its ravages. One of your most popular authorities, M. Charles Nordmann, wrote recently in the *Revue des Deux Mondes:* "Statistics show that tuberculosis has killed twice as many men in the eighteenth and nineteenth centuries as did the enormous wars of these times."

If one accepts average statistics of tuberculosis mortality, it is easy to calculate today that 4,000,000 of French people, who live among us are condemned to die of tuberculosis. This is, indeed, three times as many victims as the war has demanded in your beautiful country.

This scourge is enormous! Its field is the world, and the lives that it extinguishes are counted by millions! How is it possible to estimate the loss which the country sustains through the death of men whose lives are at least fifteen years shorter than those of others? For America, we have estimated this loss at 6,000,000,000 francs per year.

It is true that France is not the only battlefield of the "white plague," but, it is, nevertheless, one of the favorite fields



As Peace is dawning an inquieting cloud menaces France. It is Tuberculosis. It must be vanquished.

of battle, and one in which the disease demands a vast number of lives. Statistics of tuberculosis mortality are of recent date and it is possible to follow with precision, for a few years only, its curve of occurrence.

Per thousand of population in 1906, the average mortality from tuberculosis was in France 2.22. This enormous ratio, one of the strongest in the world, had not

* Professor Gunn, who promised to the JOURNAL a story of the great work against tuberculosis in France, sends for this purpose his article in the wide-awake French magazine, *Je Sais Tout.* The translation has been made with his consent in the office of the JOURNAL and by its staff.

declined much by the time of the breaking out of the great European war, since in 1915 it remained still at 2.15. At the same time in England, the tuberculosis mortality, per thousand inhabitants, was 1.65 in 1906, while in 1913 it was 1.35, a diminution of about one-fifth.

In the United States where notification is obligatory in thirty-six states for all forms of tuberculosis, and in eight others for pulmonary tuberculosis, the decline has been practically the same, and the mortality has dropped between 1906 and 1913 from 1.80 to 1.48. If you apply this proportion to the millions of individuals who die of tuberculosis, you will see that the diminution of these decimals is equivalent to hundreds of thousands of human lives saved. To refer again to the words of M. Nordmann, about fifteen years hence, the mortality from tuberculosis in the United States will be only about one-half what it was in 1906.

It may seem strange, at first sight, that tuberculosis kills proportionally more persons in France than in America or in England, because the climate of your country is more equable and more healthful than the climate of either of the two other countries.

It seems strange that for 21 Frenchmen who died of this disease in 1913, only 13 Englishmen died. Such a result relates itself to carelessness in the observation of the elementary rules of hygiene and indicates the presence of a group of tuberculizing factors such as housing, clothing, furniture, crowding in living rooms, habits and professions.

But what is even more serious is to realize that although the mortality of this disease diminishes regularly in England, conditions remain almost stationary in France, which is, in addition, the country most deeply stricken. And now the war has come, which simply aggravates this situation, already perilous.

On account of the war, the terrible malady, far from diminishing, has increased greatly in France. It could hardly be otherwise. The country, which has mobilized about 8,000,000 men out of a population of 38,000,000, has been obliged to assemble side by side, the healthy and the ill, and among the latter, the pre-tuberculous and those actually having the disease. The results of the hardships of the war have been to exhaust rapidly the already diminishing strength of those who are physically weak, and after a while, the army was obliged to reject them by thousands. These tuberculates all became just so many foci for the dissemination of the terrible scourge.

I should say, right here, that men were found ready immediately to combat this danger in France, and thanks to the united efforts of the Ministers of the Interior and War, there were created at once department committees to care for the health of the military tuberculates, and sanatoria were opened for their accommodation.

But the evil marched very quickly, despite this kind of effort. Not only the pre-tuberculosis, but the light cases returned and became carriers of the deadly germs, and besides all the weak men of your unfortunate prisoners who suffered in Germany from cold and famine, who were exhausted there in unconscionable hardships imposed on them by the Germans, subjected to forced labor, and oftentimes at the edge of famine. All those beings who by millions were systematically robbed of their vitality by Germany, returned to France either tubercular themselves, or predisposed to it. But these do not comprise all the causes. It is necessary to add the extraordinary multiplication of camp followers who have overpopulated the cities bringing the ills that accompany congestion; it is necessary to add the insidious work of alcoholism

which, as Landouzy said, continues to "make the bed of tuberculosis." Then it is necessary to add the wide-spread ignorance which prevails among the masses, and which is the reason that the germ of the disease, demanding so many victims, has been treated with such indifference.

At the coming of this peril which menaces the life of France, medical authorities gave the alarm. Good advice was offered and excellent measures have been taken.

This is not the place, nor have I the knowledge to set forth in its details the triple action, scientific, administrative, and parliamentary, undertaken in France, in the anti-tuberculosis struggle.

As early as 1865, the experiment of Jean-Antoine Villemin, Professor of Clinics at the Military Medical School of Val-de-Grace —one of the greatest names in all French medicine,—revealed the contagiousness of tuberculosis. He made an experimental demonstration of truths suggested as early as the sixteenth century, in Italy by Frascator, and in France by du Laurance, physician of Henry IV, who affirmed that the suppurating matter was susceptible of contaminating healthy subjects. It is a matter of history also, that in 1781, Philip IV, King of Naples, of Jerusalem and of Sicily, proclaimed the contagiousness of consumption in the streets and passage-ways of Naples, and gave the order to the physicians "to declare consumptives, after the objects which they used were burned and their houses disinfected, to be delinquents with punishment in prison and a fine of a hundred ducats, or exile from the kingdom."

Nineteen years after Villemin, Robert Koch, discovered, under the form of a bacillus which bears his name, the microbe which is the contagion bearer of tuberculosis. To demonstrate tuberculosis contagious was at the the same time to proclaim it preventable.

Tuberculosis congresses were held in Paris in 1888, 1891, 1893, 1898 and 1905 under the management of your best specialists: Professors Chauveau, Villemin, Verneuil, Nocard and Herard. These congresses demonstrated that the distribution of tuberculosis resulted from the development of modern social methods, men living today in a way very much



The Boche eagle will be conquered. Tuberculosis must be also.

more congested than formerly. Expressing this idea, Dr. Landouzy said: "Sociability travels so fast that hygiene, quickly distanced, cannot follow."

It would appear that, for a malady the social character of which is indisputable, it is necessary to oppose it with social therapeutics.

On the eve of the war, the anti-tuberculosis equipment of the French, according to a report of M. Fillassier, in December, 1913, was composed of 46 anti-tuberculosis dispensaries, of which 28 were in Paris, and the others scattered

through 15 departments. At the same time, M. Delbruck, German Minister of the Interior, was able to declare at the 1913 Congress of Tuberculosis that his empire could count 1,500 dispensaries or smaller organizations.

But since the war, new forces have been aroused, and France is ready to accomplish, in the face of the imminent danger of tuberculosis, the work which can give excellent results if it is carried to the end. On March 21, 1915, Deputy André Honorat invited the government to assure to the soldiers rescued from tuberculosis the proper education and the necessary care. M. Léon Bourgeois secured from the Ministers of War and Interior an agreement as to the terms on which the latter would assume the responsibility of rehabilitating soldiers formerly tuberculous, while the Minister of War agreed to allow them a daily indemnity of 3 francs for a term of three months.



Hygiene ! Well, well ! As for me, I always dust dry.

On August 22, 1915, M. Brissac, Director of Charities and Social Hygiene in the Ministry of the Interior, presented to the Permanent Tuberculosis Commission a report which was adopted, and which contained a plan of organization of sanatoriums destined to care for the tuberculous.

The 18th of October, the same year, on the motion of M. Honorat, a law was enacted which appropriated 2,000,000 francs for the same object, and the Minister of War established regional sanitary hospitals intended to care for tuberculates, whose acute or sub-acute condition necessitated immediate and continuous attention. At length, on the first of April, 1916, under the patronage of the President of the Republic, there was created a National Committee of Assistance to Military Tuberculates, and in the large cities department committees, all of them financed by the respective local governments. Organization was immediate. It was necessary, for the danger was increasing very rapidly.

On December 14, 1917, at the session of the Senate, the Sub-Secretary of State in the Division of Health, furnished these figures: "Between August 2, 1914, and October 31, 1917, 89,430 military men were rescued from pulmonary tuberculosis. In his report to the General Assembly of the Departmental Committees at the end of 1918, Dr. Léon Bernard stated that 23,681 of these men cured of tuberculosis—9,216 for the Department of the Seine—had been aided by the departmental committees."

Such figures as these will explain to you sufficiently why we have been encouraged to bring our contribution also, small though it may seem, to the fight which France is now engaged in against tuberculosis.

America loves France, and this feeling dates back for centuries. Before the conscience of the whole of our country realized the necessity of taking part in our battles at the front, the United States understood that it was necessary without delay to take part in the struggle against tuberculosis, a name more terrible even, than that of the Germans themselves. That is how in February, 1917, the Rockefeller Foundation conceived the idea of sending as a commissioner Dr. Hermann M. Biggs of New York, to study the tuberculosis condition in France.

In the spring of the same year Doctor Biggs sent a report which determined the sending to France of a commission charged to coöperate with the French government towards the development of a Franco-American anti-tuberculosis plan. There was no time lost, for in July, 1917, the Commission for the Prevention of Tuberculosis in France landed at Bordeaux, accompanied by Dr. Livingston Farrand, President of the University of Colorado, one of the most important names in American sanitary science.

We do not need to tell you what you know already better than we. We simply ask you to confide to us a part of your growing burden, and to accept our moral aid, and our practical assistance in all sorts of ways. This is an assistance which will come from twenty years of experience, and twenty years of fruitful results secured through these methods in America.

In the United States, we have succeeded by simple methods of practical hygiene, possible to everybody, in causing the mortality from tuberculosis to fall more than half in twenty-five years, in great cities like New York, Boston, and Philadelphia. To obtain these results, how did we go to work? We have cared for the sick people as well as possible, but above all we have intensified and extended methods of prevention.



Wash your hands before meals and on coming from the W. C.

It has been our object to establish protection against human tuberculosis. In order to do that, it is necessary to teach the people who had not known it, what this disease is, and how dangerous it is because it is invisible; how it attacks the individual and if one has been attacked, how to realize this, and how to escape from the malady. It is necessary to teach, also, the doctrine of cleanliness, of fresh air, and sunlight; these are good medicines, the very best. In order to teach a population this catechism of health, and to secure their observance of it, it is necessary to appeal to them with methods which will be supported by material results. M. André Honorat himself has very well defined a course in his report presented to the Chamber in 1916, noting that the requirements are:

"Dispensaries to look up tuberculates where they live, to furnish to them the care that their condition of health demands, and to watch that the malady does not transmit itself from them to the group of people in which they live.

"Sanatoria to cure and to educate the sick, to assure that on their return to family life and social life they can do this without peril for these persons or risk for themselves, and be able, little by little, to take up again the normal life. In effect, this is an institution of insurance against the disease which can furnish aid to those in reduced circumstances so that certain individuals, above all, the poorest in the villages shall not be condemned to a loss of the care which can improve their state, and become, lacking this care, an element of danger for the family and for the community in which they live."

To apply these methods to this program, we have chosen a field for experiment, divided into two sections. The first is at Paris, the XIX arrondissement, very populous, inhabitated by people of moderate means, where conditions of hygiene are difficult to realize—three dispensaries are at work there, and a fourth will open shortly. The second district is in Eure-et-Loir, where very shortly twenty-six dispensaries will be at work. The medical service of the commission is under the direction of Dr. Bernard L. Wyatt, assisted by Dr. W. C. Klotz.

In order to realize our program, we have the fraternal aid of the American Red Cross, which concerns itself most particularly with the equipment of hospitals, sanatoria, and gives assistance to the families of the poor.

As for ourselves, with the assistance of the French departmental committees, the groups of local authorities and the general good will, we have strengthened our service of propaganda and extended our work.

Now about the management of our dispensaries. The dispensary is the center of action; it is a principal agent; it is the infirmary to which one can send for an instructing nurse. Her rôle is complex. She looks after the filling of medical prescriptions, and to the observation of the indispensable rules of hygiene; but she has for her mission also to investigate the section to which she is attached, not only to find tuberculates there, but especially to become acquainted with their environment, their families, their friends, and and their neighbors, to determine the healthfulness of their homes, etc. This is necessary. If the progress of tuberculosis is to be checked, it is necessary to fight it in the individual attacked, and it is necessary, also, to prevent it from invading and infecting individuals still healthy.

To protect from evil effects everyone possible is the work of prophylaxy, and this also is the rôle of the visiting nurse. It is because of this that visiting nurses take note of all those who approach a tuberculate who is on his way to the dispensary.

As soon as he arrives there, he is thoroughly examined; his lungs and his throat are the objects of special attention. Questions are asked him with reference to preceding symptoms, as well as those existing, and then, according to the progress of the malady, he is put in one class or another. Some classes are given over to the dispensary where treatment, medicine and aid are given to them freely; others more deeply infected, but perhaps more easily benefited, are sent to the sanatoria; finally, the acute cases are immediately hospitalized in beds put at the disposition of the dispensary at the different hospitals.

It is necessary to attach great importance to the educational campaign which is a portion of the work. It is necessary

to consider in undertaking the problem of teaching that there is a psychological difference existing between French people and the Americans. It has been necessary to adapt to the French temperament the methods of reclamation, publicity and circulation, already utilized in America with profit. They have solved the difficulties.

It is always with pleasure that I have helped in the many towns—more than 150 up to now—in which I have assisted in explaining the subject to the people who visit our traveling exhibitions, conferences, and our movie shows.

Up to now, we have visited thirteen departments: l'Eure-et-Loir, le Loir-et-Cher, l'Indre-et-Loire, l'Ille-et-Vilaine, l'Allier, les Côtes-du-Nord, le Finistère, la Loire-Inférieure, le Cher, la Nièvre, la Gironde, etc. A crowd of auditors that has been estimated at more than 300,000 has received good words, and has listened to them with attention.

More than 1,750 lectures with films and many conferences have told the young as well as the old people what tuberculosis is, what its dangers are, and how to avoid them.

As to the number of pamphlets, posters, and post cards of all kinds that we have scattered in the districts through which we have gone, they surpass two million. Today, we are in the process of applying to l'Eure-et-Loir an intensive method of anti-tuberculosis prophylaxis, which if it gives the results that we expect should become, we think, worth while for all the departments of France. Four central dispensaries, and twenty-two secondary dispensaries are at work, or ready to begin, and this means each capital town in the department is already provided with one, or soon will be. Nine doctors give continual consultations, and twenty-one visiting nurses patrol the different sectors.

If I speak especially about our Parisian organization or our organization in Eure-et-Loir, it is because they are the fields of experience which permits us to adapt most completely to the habits and temperament of the French our prophylactic methods. Nevertheless, it is not to be believed that our activity in France stops there. I have already said that we consider our work of propaganda as a most important portion of the American program. My colleagues and friends, Dr. Bruno and Captain F. Wing, are pioneers who are traveling throughout all France to sow everywhere the good seed of anti-tuberculosis education.

Their purpose is to work always through local authorities and, supported by private initiative, accomplish what they wish. Their contribution consists above all, in stimulating and attracting the good will of the people, and educating them so as to coöperate with them towards a useful realization, establishing centers in places where French efforts have been scarce, elaborating programs, and plans, effecting useful, technical consultations, and in fact making every anti-tuberculosis organization a union, material, financial, moral and psychological. It is no more than a duty to state here that in all the departments through which they have passed these two men have always united their efforts to those of the departmental committees.

Our efforts are equally active toward the establishing of visiting nurses. There also we have worked always in harmony with French organizations. We have agreed to pay the costs of instructing visiting nurses in three special schools of Paris: de la Glacière, des Infirmières-Visiteuses et de l'École de Mlle. Chaptal. At Bordeaux also a school is opened which has begun with seven pupil nurses. Altogether, we have furnished scholarships for sixty-one visiting nurses who were placed under the direction of Miss

Crowell, and who operated not only in the dispensaries of d'Eure-et-Loir and Paris, but who are sent by us to various French dispensaries on request of the latter.

All that we have done for you we have done with good will, we Americans, and we have done only that which you would have done for us. We have only one desire, and that is that the effort which we bring to the anti-tuberculosis war in France shall be fruitful in its results.

It will be sufficient for us to feel that we have served to the extent of our ability, the necessary and beautiful cause of humanity.

Explanatory Notes on the Illustrations.

Professor Gunn refers incidentally to the pamphlets, posters and post cards that have been distributed—2,000,000 of them—by the Commission. The story would, however, be very incomplete without some further notice of these, so important have they been and so cunningly fitted to the French psychology. Some of the pictures have been reproduced in the Journal within the past eighteen months, but there are so many new members since that time that there seems to be no harm in repeating one or two of them.

Several stirring posters were displayed during the campaigns of the commission, but no one of them more telling than that of the "Two Scourges, the Boche and Tuberculosis." This with its dying, impaled Teutonic eagle and its prophetic legend, "The German eagle will be vanquished; tuberculosis must be also," raised a storm of protest in Germany into which some copies filtered. The newest poster, not hitherto reproduced here, "The Threatening Cloud," appeals to an artistic people.

In another group of "literature" is the picture postal in colors of which many thousand sets were circulated. These are in French vein and present some spirited drawing coupled with an elementary lesson in hygiene. "Wash your hands before meals and after coming from the W. C.," is the legend on the one here shown, the French understanding the initials quite as well as they do the mystic, "No. 100," of their office buildings. Most attractive also are the postcard sets, a dozen subjects to the pack, in black outline, of which the youngster with the dry, feather duster is a sample.

Later than these and not hitherto reproduced in this country are two items, a folder and a pamphlet. The folder is in colors and has for its legend, "Save the Children; Bits of News in Panels and Poems." It seems worth while to give two of the pages and the title. Unfortunately the colors do not lend them-



selves perfectly to reproduction and the striking contrast of the red cow against the village church green is in part lost.

The latest of all the publications, which have included parchesi games and primers for the kiddies and literature for the grown-ups, are two bilingual pamphlets, intended for circulation in the provinces of Alsace and Lorraine, where German has been obligatory the past forty years under Teuton autocracy. They convey their lessons in German as well as French and illustrate with new pictures as well as old the truths of hygiene.



LA TUBERCULOSE ET LE LAIT

Laissez boire a l'enfant
le lait qu'il veut avoir,
C'est l'aliment rêvé
le matin et le soir.

D'une vache malade
et tuberculeuse,
L'enfant pourra prendre
la maladie affreuse.

Si l'on ne lui bout pas
le lait soigneusement,
Une courte ébullition
suffira pleinement.

Vous devez faire bouillir le lait

In the drinking of milk
Let the children delight;
It is food that's ideal
For morning or night.

But poor milk from sick cows
Of tuberculous trend
May infect the poor child
With disease in the end.

If one is not certain
That his milk is pure,
A very short boiling
Will make it secure.

Always boil the milk.

For the child that is sick,
Pale and worse for the wear,
The tonic to give him
Is lots of fresh air.

Fresh air is health
And health is life.



DU GRAND AIR DANS LES ÉCOLES

A tout enfant chétif,
malade, anémique,
Donnez le grand air frais
comme seul tonique.

Et là où vous vivez,
un bon endroit cherchez,
Pour l'école en plein air
sans faute y installer.

Les écoliers
venant étudier en ce lieu
Grandiront plus vite
et s'instruiront bien mieux.

"Le grand air c'est la santé, la santé c'est la vie"

And wherever you live
It should be your first rule
To look up a site
For a fine fresh-air school.

The scholars who study
In this out-door place
Will grow much more quickly
And win learning's race.

This free translation is by the JOURNAL staff.

HEALTH WORK IN SOUTHERN STATES

On the occasion of the meeting of the American Public Health Association in New Orleans the JOURNAL is setting forth some of the accomplishments of State Health Departments of Southern States. Four of the States are here represented in brief, official summaries.

PRESENT AND FUTURE OF PUBLIC HEALTH WORK IN KENTUCKY.

ARTHUR T. MCCORMACK, A. M., M. D.,
Secretary of the State Board of Health of Kentucky, and Recently Chief Medical Officer of the Canal Zone.

THE State Board of Health of Kentucky was created in 1898 to meet the emergency of the disastrous epidemic of yellow fever which rapidly spread over the entire South and seriously menaced the whole United States in that and the succeeding year. Hurriedly drawn, the law was very imperfect and practically without appropriation, but with funds borrowed upon the personal credit of its members, the board managed the interests entrusted to it so successfully that succeeding sessions of the Legislature and, still more, a long and unbroken line of Appellate Court decisions steadily so extended the powers and duties of the board and its affiliated county and city boards that soon they had the entire police power of the commonwealth back of the comprehensive rules and regulations they were from the first authorized to make.

Later, when medical education had fallen to such a low ebb, and blatant quackery had gained such a foothold here and in the Union, as to bring reproach upon the profession, which must lead in all effective health reform, a strong medical law was passed, with provisions ensuring fair treatment for all systems of practice. Its administration placed in the hands of the board, with a resulting merger movement fairly satisfactory to almost all concerned. Under this arrangement the Medical Department of the University of Louisville inherited the properties and good will of the six schools theretofore existing in the state, and soon, in addition to the other advantages, not an open or advertising charlatan operated within its borders.

These successes were impressive, but at the same time largely superficial from a real health point of view. There were the handicaps of an archaic state fiscal system and a resultant empty treasury, so that the annual appropriation was only $2,500, while that for county work was in general equally small, and in most of them nothing at all.

The reason that any real progress was made under such adverse conditions was due to a number of different factors. The secretary of the board lent his home to the board for its office, and the members of his family furnished clerical and stenographic assistance for 28 years, during which time he practised medicine every day for his own and their support. There were 500 physicians of reputation in the 120 counties who did the local work without compensation. Further than this there was the realization of the importance of the education of the people. As well as was possible under the circumstances, the teachers, the news-

papers, the clergy and the legal profession, and of more importance than any of these, the women's clubs, were enlisted in a campaign, largely informal, to impress on every Kentucky home the knowledge of the large ratio of really preventable deaths.

Imperfect as its leaders knew this pioneer work to be, the unselfish, tireless and more or less successful efforts of the medical profession, of which the State and County Boards of Health considered themselves the executive committees, in protecting the health and lives of the people in times of epidemic stress, as well as in every day practice, at last created a favorable public sentiment. As the result of this, in 1910, long before the condition of the state treasury was at all relieved, the law was so extended as to provide for a Bureau of Sanitation, a Bureau of Bacteriology, a Bureau of Vital Statistics, after the plan of the model law, and an Annual School for County and City Health Officers, with the attendance compulsory and all expenses paid by the jurisdiction represented by each of them. For all of this there was an annual appropriation of $85,000, including that from counties for Vital Statistics.

This enactment marked a new era in Kentucky. At the end of the first year the state was admitted into the registration area for deaths, as has since been done for births. A little later the U. S. Public Health Service, in coöperation with the board, as was true of all the other activities to be mentioned, began a survey of the Ohio River and its tributaries, covering the sources of public water supply for the entire state, at an estimated annual expense of $30,000. This service also during that year established three hospitals for the treatment and eradication of trachoma, moving them from year to year, as districts were freed from the disease. All of them are still in active operation, and are monthly curing hundreds of these infectious cases at an annual expense of about $30,000. About the same time the International Health Commission inaugurated a campaign to demonstrate the possibility and duty of eradicating hookworm disease, which was most successfully done at an annual expense of $20,000.

In each of the eight years since it was created, the Bureau of Bacteriology has made free examinations of an average of 32,750 specimens as aids to diagnosis, distributed an annual average of 23,887,000 units of diphtheria antitoxin at its actual cost based on competitive bids, and proportionate amounts for use against typhoid fever, smallpox, tetanus and other sera and vaccines free, or at small cost. Through the generosity of the Mayo Foundation and Doctor Rosenow, it distributed for free use vaccine for about 500,000 persons during the recent influenza epidemic, with such satisfactory results that the board is now establishing its own laboratories for the manufacture of this and all the others of the vaccines and sera mentioned, for continuous free distribution. This bureau has also administered the free Pasteur prophylactic treatment against rabies to 869 persons, all with a saving to the people each year, by this activity alone, of fully twice the annual appropriation to the board for all purposes. It is calculated that the money expended by the other bureaus, to say nothing of the protection to health and life for the work done under its auspices by the national agencies referred to, has been a good investment.

When influenza was brought into the state in September of last year, by troops from infected camps in other sections of the country, warned by the disastrous experience in other jurisdictions previously affected, every theatre, picture

show, school, court, church and other place of public assembly was closed and the order rigidly enforced. Individuals and families were isolated as nearly as could be done and, in response to cries of distress from every quarter, with the most cordial daily coöperation of the U. S. Public Health Service, Red Cross and State Council of Defense, 36 civilian physicians and a larger number of nurses were sent to aid the official Medical and Nurse Corps of Camp Taylor, and 196 physicians, 216 nurses, and food and other supplies in great quantities, were sent to stricken rural communities in different parts of the state.

On account of the progress so briefly and imperfectly described here and the growing sentiment for better things, it was not difficult to secure the passage of a bill at the last session of the General Assembly, transferring to the State Board of Health, the State Tuberculosis Commission, the State Pure Food and Drug Commission, the State Hotel Inspection Service and every other agency of the commonwealth performing health functions, with all of the powers, duties and appropriations pertaining to or imposed upon them. The total annual appropriation for these services including that already provided for the work of vital statistics was $140,000.

After the transfers were made, so that it might better perform its original and these added duties, the board ordered that existing bureaus be continued and created new ones as follows: A Bureau of Vital Statistics, a Bureau of Tuberculosis, a Bureau of Epidemiology and Bacteriology, a Bureau of Pure Food and Drugs, a Bureau of Venereal Diseases, a Bureau for the Conservation of Vision, a Bureau of Hotels and Restaurants, and a Bureau of Sanitation having within it the following: A Division of Sanitary Engineering, a Division of Housing and Industrial Hygiene, a Division of Child Welfare, and a Division of County and Visiting Nurses.

The State Board of Health had been located at Bowling Green for 36 years, but upon the enactment of this consolidated health law, negotiations were opened between it and the University of Louisville, looking to the removal of the boards, offices and activities to that city. Further than this the organization is proposed, under the joint auspices of the university and board, of a School for Health Officers, Visiting Nurses and Welfare Workers. The full course will lead up to a degree for the respective vocations. The secretary of the board will be dean of the school, and the heads of the bureaus and such others as may be selected will compose the faculty.

The law also makes provision for County Departments of Health, with full time health officers, public health nurses and other assistants, and for emergency laboratories and other necessary equipment for real health work, in every county or groups of counties, to be established and maintained by the local fiscal authorities, or by vote of the people. With the non-partisan, non-sectarian central organization to coördinate the entire program, and a school to give a course of practical training for those who are to do the real work in every county and community, and the leaders of public opinion everywhere ready to coöperate in it, it would seem that the possibilities for the future in this field are only limited by the intelligence and public spirit of the people and fiscal officials of each jurisdiction.

ALABAMA'S ACCOMPLISHMENT IN ONE HALF-YEAR OF PUBLIC HEALTH ADMINISTRATION.

S. W. Welch, M. D.,
State Health Officer.

THE plan of public health administration adopted by the Alabama State Board of Health includes the organization of health units in every county; these units to consist of a full-time health officer who will act as an executive and direct the work of sanitary inspectors, public health nurses and a laboratory assistant. The foremost problem to be attacked by the county health unit is the problem of rural sanitation. An activity which should go hand in hand with sanitation is that of public health nursing, used primarily as a means of public health education. For every six counties operating under this plan it is proposed to install a field representative of the State Board of Health as advisor and consultant. Special bureaus will also aid in the development of the various types of work.

During the first six months of 1919, five county health units were established, bringing the number in the state up to fourteen.

A basis of coöperation has been established with the International Health Board by which its funds become available under certain conditions for the building of units in counties operating under this plan.

The United States Public Health Service has entered into an agreement with the State Board of Health to undertake work in certain counties on a coöperative basis, the connection being established through the State Health Office.

The Children's Bureau of the Department of Labor has made several studies in Alabama relative to the conditions affecting infant and maternal mortality, the health status of children in the pre-school age period and the health status of children in industry.

A bureau for control of venereal diseases was established in the latter part of 1918, the United States Public Health Service coöperating with the State Board of Health. During the six months under discussion, fourteen clinics for the treatment of venereal diseases have been successfully established by this bureau. A "movable" clinic is the feature of this work. It consists of a clinician and a nurse who, in rural counties, go from village to village and instruct for a given period a local doctor in administering the treatments. It is hoped to get a sufficient number of men in the rural districts to do the work, the State furnishing the equipment and the treatments. In July of this year 7,200 treatments were given in these clinics, and 1,300 doses of arsphenamine, at a cost of $3,800. The value of this month's work, estimated according to regular medical fees, is $35,000.

Short studies in infant and maternal mortality were made by the Children's Bureau in three cities. These studies were accompanied by health conferences which afforded free medical examination of children in the pre-school age period. Studies of the health status of children in the adolescent period were made by the Children's Bureau in all of the industrial centers of the state. These activities were of inestimable educational value in the communities in which they were carried on and will eventually exert a statewide influence.

A Bureau of Public Health Nursing has been established as a part of the machin-

ery of the State Board of Health. A public health nurse, Miss Jessie L. Marriner, formerly engaged in making infant and maternal mortality studies in Alabama for the Federal Children's Bureau, assumed the direction of this new department. Its object is to develop public health nursing activities throughout the state, covering every phase of the work. During the four months of its existence this bureau has made a survey of the public health nursing resources of the State, showing that twenty-nine nurses are employed in industrial plants, six by boards of health, seven by the state board for venereal disease clinic work, four independent employees of a Life Insurance Company, five by the State Anti-tuberculosis Association, three by Visiting Nurse Associations, three by Red Cross chapters and two by boards of education, making a total of fifty-nine public health nurses employed in the state, which has a population of more than two and one-quarter million people, an average of one per 40,000. In certain Eastern States the growth of this service has reached a point where one nurse is employed in community work for every 9,000 of the population, and additions are constantly being made to the force. The need for encouraging the development of this phase of work in Alabama is sufficiently obvious.

The American Red Cross, in its peacetime program for assisting in the development of this field, has joined forces with us by appointing as their state director of nursing activities, the head of our Bureau of Public Health Nursing. A process of building up existing agencies in this field has been successfully begun in Mobile where the Red Cross Chapter has contributed to the Public Health Nursing Association the salary and expenses of an additional nurse; and in Colbert and Walker Counties where nurses have been appointed under the chapters.

Legislation has been introduced providing for the adequate control of venereal diseases and for the enactment of laws regulating the gathering of vital and mortality statistics based upon the requirements of the Model Law of the Bureau of the United States Census.

The legislature, now in session, has been asked to make an appropriation of $150,000 for state health purposes. The proposition has the endorsement of the Governor and the Budget Committee and has little opposition in either House.



WHAT LOUISIANA IS DOING.

Miss Agnes Morris,
New Orleans, La.

RECORDS of the Louisiana State Board of Health for the past decade show a well-defined program each year in some specific line of work.

Dr. Oscar Dowling, when appointed president of the board in August, 1910, sensed the fundamental and essential need for adequate vital statistics; therefore, he began immediately a campaign to obtain these reports. In response, sixteen parishes offered to pay local registrars. The postmaster-general upon request gave permission to postmasters to act as local registrars. Later, the state enacted a law making it mandatory that each parish pay twenty-five cents for each certificate of birth and death accepted by the State Board of Health.

These measures together with the edu-

cational campaign carried on by personal letters and through the press resulted in the admission of Louisiana, November, 1919, into the registration area for deaths. The provisions of the model law have been in effect practically since 1910, but in 1918, with a few adaptations to meet local conditions, it was made a state law.

At present special effort is being made to make complete the records of births, and it is hoped the state may be recognized this year by the Census Bureau as having the required percentage of births recorded. Louisiana's death rate compares favorably with that of other states and her birth rate is relatively high; therefore, admission to the Registration Area is a commercial asset of importance and invaluable as a basis for effective health activities.

One entire year was devoted to obtaining help from the doctors in the reporting of communicable diseases. The bureau at Washington gave material assistance by appointing Dr. Dowling collaborating epidemiologist and in furnishing supplies of stationery and cards.

The bureau now handles thousands of reports each year, and though these records are still incomplete the progress being made is shown by the figures. The total number reported in 1914 was 6,141, and in 1918, including more than 200,000.

In connection with this bureau, antityphoid vaccine is furnished free, about 40,000 doses having been distributed within the past year.

For twelve months control of venereal disease has been emphasized. The reports for August, 1919, show 1,318 cases reported—pertinent proof that the doctors are beginning to realize the value of the assistance offered by the State Board of Health. Measures of control were made possible by enactments of the legislature in May, 1919. Since then five clinics have been put into operation, and through the help of the Chamberlain-Kahn fund salvarsan and nursing service are provided free, the medicine costing about $1,000 a month.

A Bureau of Sanitary Engineering was established in 1913. Control of water supplies, sewerage and sewage disposal systems was put into effect. Through this bureau local officials are given aid in operation problems, and public and railroad supplies water supplies are supervised. Plans for new systems and treatment plants are reviewed. Supervision of campaigns for hookworm eradication, through installation of sanitary privies in rural districts is given when certain requirements are fulfilled. Inspections of schools, court houses, jails, public markets and hospitals are made, mainly from an engineering standpoint—water, sewerage, ventilation, lighting and maintenance.

Plans are reviewed to assist local officials in getting practical designs for new buildings and for remodeling old structures.

Two outbreaks of typhoid fever have been investigated and stream pollution and odor nuisances in different sections.

Shortly after his appointment Dr. Dowling put on the road the educational-hygiene-exhibit train. The entire state was covered, and a "movie" show was given in every village, town and city. The cars and the inspectors awakened the citizens to insanitary conditions; publicity moved officials and individuals to action.

As a basis for these activities the Sanitary Code was rewritten and extended. Regulations prohibiting the common drinking cup, common towel and common hair brush were passed, and constructive rules laid down regulating sanitary requirements of schools, railway stations, jails, and all places where foodstuffs were handled and provisions made for sanitary

disposal of sewage and wastes of all kinds.

The activities of the Bureau of Food and Drugs have increased out of all proportion to the working force. About 2,000 dairies are inspected and scored and rescored during each biennium. The samples analyzed are about 1,500 a year, while the hearings and prosecutions number a thousand or more. Close to 600,000 pounds of decomposed foods are condemned each year.

Since the enforcement of the anti-narcotic acts, both federal and state measures has been so drastic the bureau has been overwhelmed with the related activities.

Consistent efforts have been made to prove to the quack, the faker, the itinerant vendor of patent so-called remedies, that this kind of fraud is not to be tolerated. A law against fraudulent advertising was enacted in 1914, and soon after the board was asked to censor medical advertisements for one of the dailies and has made every effort to bring under the ban of public opinion the charlatan and the patent remedy.

Attempts have been made to focus attention on mosquito extermination. To this end sanitary surveys were made of thirty-one cities and towns, and the rights of way of several railroads. Specific recommendations were sent to the authorities responsible for conditions.

In child hygiene, the effort has been largely to do educational work. A monthly bulletin is used as the organ of this bureau. Copies of this are distributed by the principals of the schools—about 250,000 a month. Visiting nurses were employed for two years, one colored, one white. In all, about 4,000 babies were visited with follow-up visits of 2,500. About 500 midwives were interviewed by these nurses and many babies sent to clinics for treatment. In four parishes a doctor and a nurse examined the school children of the city and rural schools. This work was done as a demonstration of the need for medical examination and attention. A record of the examination of each child is sent to the parent. In one city follow-up work was done. The records show about $33\frac{1}{3}$ per cent of the children had received medical attention.

For the past five years there has been a constant propaganda carried on among the negroes. A colored lecturer with a moving picture outfit transported on a Ford truck is constantly on the road. This lecturer goes into the rural districts, distributes literature, gives moving picture entertainments averaging about five nights a week.

A comprehensive program made out in detail as to the health needs of the people of the state was presented to the Legislature of 1918 with a request for a per capita appropriation of at least $12\frac{1}{2}$ cents. Only $50,000 was allowed, and with this amount the State Board of Health has been unable to put into effect many of the activities planned.

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What these States have been doing will be discussed quite fully at the Annual Meeting. There is still time to make up your mind to go.
New Orleans, October 27-30, 1919.

PLANS AND PERSONNEL OF THE RECENTLY CREATED NEW MEXICO STATE BOARD.

C. E. Waller,
Passed Assistant Surgeon, United States Public Health Service, Acting Commissioner of Health of New Mexico.

THE present New Mexico State Department of Health was organized as a result of a statute passed by the 1919 legislature. The department is composed of a board of health, consisting of three members, one only of whom need be a physician; a commissioner; and the administrative staff.

The Board of Health is appointed by the governor. Its members serve for a term of six years, without salary. The board has power to pass such regulations concerning the public health as are necessary for the enforcement of the statutes, and such regulations have the effect of law. Rather broad general powers are conferred.

The commissioner of Health is required to have had experience and special training in public health administration. He is the executive officer of the department, and exercises its powers and duties.

At the present time, by arrangement with the United States Public Health Service, P. A. Surgeon C. E. Waller is acting as commissioner, beginning July 15, 1919. The present staff consists of G. S. Luckett, M. D., as director of the Division of Preventable Diseases, and Harold F. Gray, M. S., Gr. P. H., as director of the Division of Sanitary Engineering and General Sanitation. A laboratory will be established at an early date.

The first work of the department to be undertaken is the administrative organization, so as to secure a reasonable supervision over the local health jurisdictions, and provide adequate records. Reporting of vital statistics and morbidity are receiving immediate attention. Special campaigns against smallpox and typhoid fever, which are prevalent, will be carried on. A general survey of water supplies and sewerage is now being made. Special efforts toward public health education are in progress.

Very little is known as to the real public health problems of New Mexico, since mortality and morbidity data are practically non-existent, and the physical and anthropological characteristics of the country and the people are decidedly different from those of other states. For this reason it is anticipated that the solutions of various public health problems which have been found applicable in other states will not apply exactly to New Mexico, and new and original methods will have to be devised and tried out.

The Board of Health appointed by the governor recently includes Mrs. A. Otero-Warren of Santa Fé, chairman; John Tombs, Albuquerque, secretary, and Oliver T. Hyde, M. D., of Alburquerque.

For reports from other Southern States of the work accomplished and in prospect, see the November Issue of the Journal.

EDITORIAL SECTION

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A BAD GENERAL.

A good general may not be able to win a war. A bad general will surely lose it. In the fight against disease there is no worse leader than old General Principles. General Principles is another name for ignorance and laziness. At the best General Principles means *a priori* reasoning and the most that we can expect of *a priori* reasoning, when applied to the infinitely complex phenomena of life, is to suggest theories which must be tried in the laboratory, or in the field.

General Principles said germs breed in filth, so twenty years ago the Federal Government sent Colonel Waring to clean Havana in order that the germs of yellow fever might not grow. It was fine to have a spic and span city, but there was more yellow fever the next year than ever before. According to General Principles contagion, which is invisible, must be poured out in the invisible breath and spread through the air. To stop it the General gave directions to nail a sheet over the door. This the mother did when her child had diphtheria. Then, with saliva covered hands she fed the other children and they died. Nothing was said about contact infection, for how could General Principles know about that?

General Principles said that cold causes coughs; therefore cold is the worst thing for consumption, the worst of all coughs. Hence the windows were closed day and night and the consumptive died. Now the consumptive is cured by living in the open air all the year round.

According to General Principles, if there is any taint about meat it is unwholesome, for it contains "ptomaines" and should be destroyed, so the inspector seizes tons of food which many people, not too finicky, would be glad to eat, if allowed. We have learned that the General is wrong and that meat with a taint is no more likely to cause disease than meat which seems perfectly sweet.

According to General Principles the way to stop contagious disease is to isolate the sick, for disease spreads from the sick to the well. So cases of bubonic plague were isolated, but all to no purpose, for rats spread the disease. Yellow fever was isolated, but mosquitoes evaded the quarantine. According to General Principles every thing that comes from the body of the sick carries infection, hence the dangers of desquama-

tion. Hundreds of thousands of children have been uselessly isolated for two weeks for measles, when one week would have done just as well, for measles ceases to be infectious before desquamation begins.

Last autumn the world suffered from the worst epidemic in history. No one knew what to do, so, notwithstanding the defeats to his credit, old General Principles was called on to take command. Of course he wished to isolate, for influenza is a contagious disease. However, isolation of one quarter to one half of the population was, on the face of it, impracticable, so we were told to "restrict intercourse" by shutting schools, theatres and churches and by "staggered closing" of stores. It has not been shown that this did any good. Few even claim that it did. The disease ran its course and so it will, until more is known about it. One may fool the people, but one cannot fool disease.

It is time to mutiny. Health officials should depose General Principles. Let him no longer speak with authority. Let him perform his one useful function of suggesting theories for others to verify. War against disease cannot be won unless guided by specific knowledge. If the campaign is undertaken without this, there will be loss of time and money and maybe of lives. If this knowledge is not at hand it is best to delay the drive.

Charles V. Chapin, M. D.

THRIFT VS. RETRENCHMENT IN PUBLIC HEALTH WORK.

The times demand rigid economy. Retrenchment is being demanded in many fields of activity. This generally means a cutting down of appropriations, of expenses, of work. But how can appropriations for health departments be lessened in the face of just demands for salary increases to meet the rising costs of living? How can health work be given up when it has proved so valuable in increasing the health and comfort of the people, when it means so much to the vital capital of the country, when, in particular, it means so much to the laboring man, whose health is his only capital? This is a difficult problem for all health officials today. What is to be the answer?

It is natural for health officers to say, "Let the retrenchment be in some other department" than that of health for the reasons just stated. In spite of its force this argument should not prevail. Health departments as well as other state and municipal departments must share in a desperate attempt to keep taxes from rising to the point of confiscation. For many years propaganda has been active in attempting to increase appropriations. "Public health is purchasable," said the State of New York, "So much per capita for health administration" has been demanded—forty, fifty, sixty cents, a dollar a year. Health officials have been commended for succeeding in getting money appropriated for their work. In many places, the amounts spent for health administration are still too low and should be raised; but here and there there may be found budgets which in the present stress are higher than prudence justifies. Certainly the present time demands that greater attention be given to the spending side of the ledger. Thrift must take the place of liberality. The work of a dollar must be watched as it was never watched before. Let there be retrenchment if necessary, but let it be accompanied by thrift and efficiency in order that the public health movement may not be set back. Now is the season of budget-making and the time to examine critically last year's expenditures and the results which they have brought.

It is exceedingly difficult to apply the policy of retrenchment to actual cases. A few guiding principles must be kept in mind. The first is that duplication of effort must be avoided. Does Federal work anywhere overlap state work? Does state work overlap local work? Does municipal work overlap the efforts of private organizations? If there is undesirable duplication anywhere—and there often is—now is the time for people to get together and cut out the unnecessary work. The second principle is that one must find what efforts are yielding the least returns for the money spent. This means a careful scrutiny of relative values and demands the highest judg-

ment based on facts and statistics. A third principle is the separation of the ephemeral from the permanent. Accountants emphasize the important difference between capital expenditures and expenditures which should be charged against current accounts. Certain expenditures are devoted to work of permanent value,—other expenditures produce results which are useful for the moment, but are lacking in lasting quality.

A few suggestive questions may be asked. Is the department top heavy? Are the head men doing as hard work as the subordinates? The housekeeper nowadays is often compelled to do her own work without the aid of a domestic servant. Are officials too dependent upon their clerks and stenographers? Are printing bills too large? Is publicity being overworked? Does poetry really kill flies, and are cartoons necessary to attract attention to life saving principles? Can statistical tables be condensed and useless diagrams omitted? Are too many samples of water analyzed as routine procedures? Is too much attention given to disinfection? A hundred questions may be raised and in these times ought to be raised.

But it must also be remembered that there is a world-wide demand for increased production. Health is a material factor in production, and health administration pared down to a point where human vitality is threatened is no saving at all, but rather a public loss. Health departments must produce health.

Obviously, there are two sides to the policy of retrenchment and they ought to be discussed freely by health officers. There is but one side, however, to the policy of thrift. Work and thrift built up this country in its early days, and work and thrift must save it now.

The present times are likely to prove a challenge to the loyalty of public health officers to their chosen profession. It is true that salary lists respond more slowly to economic changes than mercantile profits or professional fees. But in these days when so many are making sacrifices and drawing on their bank accounts, shall medical men, acting as health officers, go back to professional practice and leave their posts to be filled with incompetents, or shall they show their loyalty by keeping hard at work on the same old salary or a slightly larger one; and if they hold on, how shall their faithfulness be rewarded? There are matters of ethics which many departments will be called upon to consider.

George C. Whipple.

HOW ABOUT JOINING A SECTION.

Members of the American Public Health Association are reminded that elections to membership in the sections take place at the annual meeting. In order that members may have the greatest advantages through belonging to the A. P. H. A. the seven existing sections have been formed, and others will be established whenever a sufficient number of members express interest in its formation. The existing sections are: Sanitary Engineering, Food and Drugs, Vital Statistics, Sociological, Public Health Administration, Laboratory and Industrial Hygiene.

In order to join one of these sections, which may be done without additional fee, it is necessary for the name to be in the hands of the Secretary of the section by or before the time of the annual meeting. At the business meeting of the section membership to the section may be effected. At no other time in the year, according to the Constitution, may members join a section. If you wish to belong to any of the sections, it is necessary to attend to the matter in time. There is no time like now, so send in your name at once.

THE PRELIMINARY PROGRAMS.

The Preliminary Programs of the New Orleans meetings have been published as a special supplement to this issue of the Journal, and each member will have opportunity to inform himself from this revised edition, of the feast of good things that is to be presented during the sessions at the southern capital.

ASSOCIATION NEWS

HEALTH EMPLOYMENT BUREAU.

In order to help relieve the shortage of sanitarians, free help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Three county directors for full-time rural health work. Young physicians preferred; $2,400 and expenses. Address C. W. P. 276, care of the JOURNAL.

Graduate chemist who has had experience in chemical analysis of foods, drugs, dairy products, water, poisons, etc. Preferably a resident of Cincinnati. Address P. H. W. 290, care of the JOURNAL.

Nurse with public health experience. Address C. M. I. 294, care of the JOURNAL.

Woman physician to assist Director of Child Hygiene, Kansas State Board of Health. Work will include Pullman health exhibit, health conferences, correspondence, etc. Salary $1,500 with vacation on pay and traveling expenses.

Wanted by the U. S. Interdepartmental Social Hygiene Board, men or women for Chiefs of Division for scientific research, $3,500 to $4,500; educational research, $3,500 to $4,500; relations with states, $3,500 to $4,500; records, information and planning, $3,500 to $4,500; also educational division assistant, $2,800 to $3,600; supervising assistant and inspector $2,800 to $3,600; field agent $1,800 to $3,600. Receipt of applications to close November 4. Apply to U. S. Civil Service Commission, Washington, D. C., or Secretary U. S. Civil Service Board, post-office or custom house in any large city.

RAILROAD RATES TO NEW ORLEANS.

Here are the tourist fares from different points in the North to New Orleans as quoted by the U. S. Railroad Administration to the Secretary. These tickets will be on sale daily at local ticket offices from October 1, 1919, till April 30, 1920, and bear final return limit of May 31, 1920. They permit of stop-overs at any point *en route* in either direction within the final limit. Add the war tax of 8 per cent to these rates.

Boston, Mass.	$83.94
Albany, N. Y.	71.00
Baltimore, Md.	63.09
Montreal, P. Q.	84.55
New York, N. Y.	73.14
Philadelphia, Pa.	68.28
Chicago, Ill.	51.03
Springfield, Ill.	43.71
Indianapolis, Ind.	46.71
Detroit, Mich.	61.33
St. Louis, Mo.	38.02
Buffalo, N. Y.	70.42
Cincinnati, O.	45.42

For the special rates from your own city, if not listed here, enquire of your local ticket agent.



LIST OF NEW MEMBERS

PROPOSED FOR ELECTION TO THE

A. P. H. A.

FROM AUGUST 21 TO SEPTEMBER 22, 1919.

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(States arranged in alphabetical order)	
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(Miss Reboc's name was spelled Rebok in August Journal.)

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CHARLES P. LARGE, M. D., Health Officer, Meyersdale, Pa.
DANIEL EDGAR HOTTENSTEIN, M. D., Millersburg, Pa.
STANLEY M. RINEHART, M. D., Pittsburgh, Pa.
O. R. ALTMAN, M. D., Uniontown, Pa.
JOSEPH SCATTERGOOD, M. D., Health Officer, West Chester, Pa.
CHARLES H. MINER, M. D., County Medical Director, Wilkes-Barre, Pa.
J. S. MILLER, M. D., York, Pa.
HAROLD E. WATSON, Bacteriologist and Chemist, Newport, R. I.
JOSEPHINE S. PRATT, U. S. Pellagra Hospital, Spartanburg, S. C.
T. C. GRAVES, M. D., Health Officer, Memphis, Tenn.
EDGAR CALVIN LEROY MILLER, M. D., Bacteriologist, Richmond, Va.
MARGARET P. KNYCK, M. D., Teacher, Richmond, Va.
L. M. FIELD, M. D., Health Officer, Beloit, Wis.
EDWARD A. BABCOCK, Health Officer and Food Inspector, Madison, Wis.
C. ELMER BARRETT, Health Officer, Salt Lake City, Utah.

BOOKS AND REPORTS REVIEWED

The Blind; Their Condition and the Work Being Done for Them in the United States. *Harry Best, Ph. D., New York: The Macmillan Co., 1919. Pp. 763+xxviii. Price, $4.00.*

One is impressed at the very outset with the thoroughness of the treatment and this feeling increases with further acquaintance with the book. The general discussion ranges itself under half-a-dozen heads: a broad statement of conditions, the possibilities of prevention, the existing provision for the education of children, the intellectual provision for the adult blind, material provision and conclusions.

The purpose of the work is to direct attention to the fact that the blind are a part of the population which should be cared for in the machinery of social organization. Hitherto the attitude has been that of compassion, and the principal provisions have been the instruction of children and indiscriminate alms. The care, so far as the public is concerned, has generally been limited to the former, and after quitting the schools the blind have generally been left to shift for themselves.

Mr. West calls for a treatment that shall be more rational and better in keeping with the advances of the age. His suggestions lie along five general lines, eleemosynary work, educational opportunities for adults as well as children, employment agencies, the proper administration of institutions and prevention. The book is really a study of these factors to a better understanding of the situation.

The student will find items of interest everywhere. The distribution of these unfortunates, for example, presents curious relationships. Why should New Mexico and Nevada have four and five times, respectively, the ratio of blind persons to total population of some other states? Why should the Southern States have a high ratio,—700 to 900 per million of population,—and Wyoming and Washington and Nebraska have only 400? Why should Maine and Vermont have comparatively high ratios, while Massachusetts, New Hampshire and Rhode Island lie in the average group and Connecticut among the low ratios?

Some of the questions are answered by Mr. West, who attributes to a race component like the Mexicans in the border states, or to an endemic disease like trachoma in the South, or to an old age condition with its failing eyesight in New England, the causes of local comparative frequency.

The possibility of employment for the blind is a subject of considerable economic importance and capable of great extension. It is discussed by this author from every point of view, costs entering into the matter in no small degree. The importance of this feature may be judged from the fact that today only about one sixth of the blind are gainfully employed and only about one-fourteenth are able to support themselves.

From the economic consideration of the matter the author passes to prevention. In this, as in so many of the statistical endeavors of our American people, the precise figures are lacking, and in fact only about one half of the real causes of cases of blindness have been reported. It is probable that four fifths of existing blindness is due to disease and more than one-eighth to accident. Cataract is the disease with the largest figure, 11 per cent; next comes atrophy of the optic nerve with 6 per cent, and then are ranged glaucoma, 3 per cent, ophthalmia neonatorum, 2 per cent, and trachoma, 1.5 per cent. Considering the eye difficulties that follow disease, together with preventable industrial accidents and the communicable diseases of ophthalmia neonatorum and trachoma, it would appear as if nearly two thirds of the blindness in the country falls within the class that is of preventable character.

Such facts as these are of great importance. They define the problems and determine to an extent their gravity. Were there no other lesson in Mr. West's volume, this would have paid for its making. It sets a point of departure in preventive work and suggests the lines along which this work may properly move forward. It is the more praiseworthy, therefore, that half a dozen subjects of like importance are considered by him. *R.*



Alcohol—Its Action on the Human Organism. *English Advisory Committee. Pp. 133+xx.* New *York: Longmans, Green & Co., 1918. Price, $0.60.*

This book is written not by or for hysterical prohibitionists, but is a review of the existing state of scientific knowledge regarding the action of alcohol on the human organism, prepared by an Advisory Committee appointed by the Central Control Board (Liquor Traffic) of England.

This committee of recognized experts was appointed to consider the conditions affecting the physiological action of alcohol and more particularly the effects on health and industrial efficiency produced by the consumption of beverages of vari-

ous alcoholic strengths, with special reference to the recent orders of the Central Control Board, and further to plan out and direct such investigations as may appear desirable with a view to obtaining more exact data on this and cognate questions.

The review covers very completely and impartially the existing scientific knowledge on the mental effects and food value of alcohol, its action on the muscular, digestive, respiratory and circulatory systems, its poisonous action, and the relation of alcohol to longevity. It might well be consulted by laymen or professional men wishing to discuss intelligently future national action in regulating drink control, and possibly as a guide to the individual in confining the use of alcohol within proper and legitimate limits.

The conclusions represent the unanimous judgment of the committee. *Clarence D. Hart.*

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Pulmonary Tuberculosis. *Maurice Fishberg, M. D., Clinical Professor of Medicine, New York University and Bellevue Medical College. Second edition. Philadelphia: Lea and Febiger, 1919. Pp., 744 Ill. Price, $6.50.*

Tuberculosis from the standpoint of the physician regarding its diagnosis and treatment, and from the standpoint of the public health worker regarding its prevention, is still a problem of great concern. Any attempt at clarifying this problem and point the way to meet it with existing facilities is to be welcomed. Such is the task which Fishberg has undertaken in this volume.

The first fifth of the book is devoted to the etiology, pathology and epidemiology of the disease and these topics are discussed in considerable detail. Chapters on the problem of infection, factors predisposing to the evolution of phthisis, and on phthisiogenesis, treat these questions in a masterly manner. The latter chapter in particular contains a remarkably clear statement of the problem of immunity.

The largest part of the book is devoted to diagnosis. The author cautions the physician in very strong terms, against jumping at hasty diagnoses, in cases not giving reliable signs or symptoms. Such haste is costly to the patient and to the community. It will be recalled that in the early years of the war, thousands upon thousands of men in the French and German armies were rejected because of tuberculosis, many of which, upon a more carefully conducted examination proved to be non-tuberculous, and when returned to the ranks made excellent soldiers.

Many chapters are devoted to a detailed presentation of the symptomatology of the disease from the standpoint of diagnosis, differential diagnosis and prognosis; methods of physical diagnosis, and a discussion of the various clinical forms. The classification of the clinical types as described by the author is interesting and useful because not only has each a different clinical course, but also a different outlook as to recovery, and the treatment differs markedly in each form of the disease. He considers eight groups: (1) chronic phthisis, incipient stage; (2) chronic phthisis, advanced stage; (3) acute phthisis; (4) fibroid phthisis; (5) abortive pulmonary tuberculosis; (6) pulmonary tuberculosis in children; (7) phthisis in the aged; and (8) tuberculosis of the pleura.

The question of treatment is discussed in detail, and the necessity for understanding properly the needs as they arise and how to meet them is clearly indicated. Institutional treatment is not the only effective method of handling the phthisical patient. "The treatment must be individualized to suit the case; it must be elastic and adaptable to the polymorphous nature of the disease and to the various accidents and complications occurring during its course."

The section of prophylaxis contains a very clear statement of the problem of prevention. The necessity for removing the infant from phthisical surroundings is clearly demonstrated by experimental evidence from many sources. Infancy is a period of high mortality from tuberculosis and it is to this period that the forces of prevention must be directed if lives are to be saved. The health officer and tuberculosis worker will find much of value in this section in formulating his campaign of attack against this disease.

This book on the whole is an exhaustive treatise on tuberculosis. Although it has been prepared primarily for the practitioner, yet public health officials and tuberculosis workers will find a wealth of material of practical interest to them. It is to be noted that about one fourth of the book is devoted to a discussion of the problem of tuberculosis from the etiological and preventive aspects of the disease. The material is presented in a lucid manner, each topic is discussed without bias and the experimental evidence given in each case. References to original sources are indicated in the text. The book also contains a well prepared index of authors and subjects. *David Greenberg.*

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The A B C of Exhibit Planning. *Evart G. and Mary Swain Routzahn. New York, Russell Sage Foundation, 1918. Pp. 234+xiv. Illustrated.*

This is an exceedingly well-written book which should be in the library of every organization having to do with public health education. The presentation in the text is eminently clear and very prac-

tical. The fifty or so illustrations with critical footnotes alone will give the reader very helpful fundamentals in the art of effective exhibiting. The authors take up such subjects as having a plan, specific advantages, limitations of exhibits, the audience, presentation of subject matter, utilization of floor space, advertising, follow-up, committee organization and expense. Some one in every health department should read carefully this book.

A. W. Hedrich.

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Chemistry for Nurses. *F. N. Peters, A. M., Ph. D., St. Louis: C. V. Mosby Company. 1919. Pp. 302. Price $1.75.*

This publication is written by a man of wide teaching experience in this particular field. Chemistry is a difficult study for nurses, and it is, therefore, very essential to select for a guide one which is written in simple language and is not too theoretical.

The text, as presented in Dr. Peters' book, is rather voluminous as compared to others serving a similar purpose. It contains considerably more material than is ordinarily required in training schools, and it may well be selected as a text-book for schools which lay particular emphasis on the study of chemistry.

Both inorganic and organic chemistry are discussed in 26 chapters. Each chapter concludes with exercises arranged in the form of a series of questions to be answered by the student. The last chapter, which deals with the common poisons, is of particular interest. The text is richly illustrated. On the whole the book is a commendable addition to the literature.

Arthur Lederer, M. D.

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CONVENTIONS, CONFERENCES, MEETINGS.

The JOURNAL will be glad to publish the dates of prospective conventions or meetings of associations whose purposes are allied to those of the American Public Health Association.

American Public Health Association, New Orleans, La., October 27–30, 1919.

October —, Louisville, Ky., State Board of Health.

October —, St. Louis, Mo., National Drainage Congress.

October—, Albuquerque, N. M., State Medical Society.

October 7–9, Springfield, Ill., Illinois Public Health Association.

October 9, Ottawa, Ont., Canadian Association for Prevention of Tuberculosis.

October 9–10, Philadelphia, Pa., North Atlantic Tuberculosis Conference.

October 13–14, Dover, Del., Delaware State Medical Society.

October 13–15, St. Louis, Mo., Association of Military Surgeons of the United States.

October 14–15, Omaha, Neb., State Nurses Association.

October 15–17, Chicago, Ill., American Association of Railway Surgeons.

October 16–17, Providence, R. I., New England Tuberculosis Conference.

October 17, New Orleans, La., American Academy of Periodontology.

October 20–24, New Orleans, Dental convention including meetings of National Dental Association, National Association of Dental Faculties, National Association of Dental Examiners, Association of Military Dental Surgeons of United States, Louisiana State Dental Society.

October 20–24, Riverside, Cal., League of California Municipalities and Health Officers.

October 23–24, Jackson, Miss., State Health Officers' meeting.

October 23–29, Washington, D. C., National Women's Trade Union League of America.

October 27–29, Dallas, Tex., State Conference Social Welfare.

October 27–30, New Orleans, American Public Health Association.

October 27–30, New Orleans, La., American Association Medical Milk Commissions.

October 30, Boston, Massachusetts Association of Boards of Health.

November 3–7, New Orleans, National Wholesale Druggists Association.

November 5, St. Paul, Minnesota Public Health Association.

November 11–13, Asheville, N. C., Southern Medical Association.

November 11–13, Asheville, N. C., American Child Hygiene Association.

November 11–13, St. Louis, Mo., National Drainage Council.

November 12–14, New Orleans, La., American Society for Municipal Improvements.

1920, January —, Concord, N. H., Health Officers' meeting.

1920, May —, New Orleans, National Conference of Social Work.

1920, May 12, Washington, D. C., U. S. Pharmaceutical Conventions.

PUBLIC HEALTH NOTES

Abstracts by D. GREENBERG, M. P. HOROWITZ and MAYO TOLMAN.

Heated Milk Does Not Have Antiscorbutic Vitamine.—Although McCollum and his colleagues have maintained that scurvy is a disease related to intestinal putrefaction and the retention of feces, more recent work in England and America seems to substantiate the former belief that scurvy is due to the lack of a specific vitamine in the diet. Several mild outbreaks of scurvy among infants have recently been reported, when cows' milk which was pasteurized at 63° C. (145.4° F.) was used. Heating does apparently destroy the antiscorbutic vitamine in milk and other foods. It is important, therefore, to use some antiscorbutic when infants are fed exclusively on heated milk or milk products. Fruit juices, such as lemon juice and orange juice, make excellent antiscorbutics. The raw juice of the Swede and the tomato may also be used. The antiscorbutic element in lemon juice is not removed or destroyed, even when the free citric acid and other acids are removed.—*Journal A. M. A.*, July 26, 1919. (*M. P. H.*)

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Sickness and Poverty.—Although many communities recognize the necessity of preventing disease, few appreciate the important relationship between sickness and poverty. Sickness frequently gives rise to poverty especially when the wage earner is affected. Where the illness is prolonged, children are put to work very early, cheaper quarters are taken for the home and the entire social scale is lowered. Poverty also increases the opportunity for sickness to prevail, because it increases the opportunities of contact, due to overcrowding. Poverty usually means the absence of bathing and washing facilities. It means a cold house in the winter and a hot one in the summer. It invariably is associated with excessive fatigue and insufficient recreation, both of which break down the resistance of the human machine. Poverty prevents a family from seeking early medical advice and treatment, and lengthens the period of convalescence. It also prevents proper and frequent dental care and other necessary aids in maintaining a healthy and virile mechanism.—Miss E. Dyke, *Public Health Jour.*, June, 1919. (*M. P. H.*)

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Problem of Motherhood.—It is a well known fact that the toll in health and in life itself of both mother and child during pregnancy and confinement is very great. If the reduction in these unnecessary deaths and illnesses is to be obtained, the problem must be attacked through arousing community interest and education in the vital facts of child conservation. This problem has been attacked in New York City through the Maternity Center Association. The Maternity Center will be the center of an educational campaign for prenatal care of mothers of the district. It will keep records of every case coming under the care of clinics in the neighborhood and will follow up each case so that no woman who registers shall be allowed to slip out from under medical care by reason of illness, carelessness or other cause.

The clinics will be open day and night for emergency calls and will see that a doctor or midwife is supplied for all cases of labor and a nurse for abnormal labors. An endeavor is being made to provide women physicians as far as possible in order, through these clinics, to reach the large class of foreigners who go to the midwife because of prejudice towards the male physician. The Center will follow up each birth and see that nursing care is provided throughout the danger period.—R. W. Lobenstine, *N. Y. Jour. of State Med.*, May, 1919, 177. (*D. G.*)

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Importance of Controlling Venereal Diseases.—The malevolent characteristic of venereal disease is that it poisons the stream of human life, it attacks the fountain, it pollutes the seed. Other diseases, notably tuberculosis, have a certain hereditary tendency, but this is a wholly different matter from the fundamental and essential malignity of venereal disease, which aims straight at the race's power to perpetuate itself, to reproduce and grow. It is responsible for more than 50 per cent of the race's incapacity to have children—I quote from the British Royal Commission. I have no hesitation in saying that its steady deadliness, continued year in and year out, is greater than the deadliness of wars that break out once every generation or so. Dr. Charles W. Eliot once said, speaking of this and a related disease: "These diseases have proved more destructive to the world since August, 1914, than all the artillery, rifles, hand grenades, and fire blasts." Surgeon General Gorgas, in urging the measures that later on were successfully adopted to control venereal disease within the American army for the period of the war, said that if it were possible to get rid of all the wounds or all the venereal diseases he would rather be rid of the venereal cases.

The mechanism for the suppression of this disease, the worst, from the standpoint of the race as a stream moving from generation to generation, is

under way. Within a short time it is expected to have a clinic in every one of the 740 cities of the country with more than 8,000 population. There will be educational campaigns that will reach every school, every store, and every factory. Venereal disease will be handled as what it is, a dangerous, communicable disease, and in a short time it should be brought as completely under control as has been done with smallpox, hookworm, malaria, and typhoid.

To state it quite simply, this is the most useful thing now being done in the world.—Mark Sullivan, *Colliers*, Aug. 2, 1919. (*J. A. T.*)

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What is the American Standard of Living?—In what is probably one of the most searching studies into this question, Dr. Royal Meeker, of the Bureau of Labor Statistics, has compiled some exceedingly interesting data and points to some striking conclusions. It is his aim to evolve standards for clothing, housing, fuel, house furnishings, education, amusement, medical care and insurance similar to the established dietary standards. Three hundred agents were employed to collect data on annual expenditures of housewives. Nearly 13,000 reports were obtained in this way, coming from 71 large, and 26 small cities, located in different parts of the country, for family incomes varing from $900 to $2,500. From his studies, Dr. Meeker concludes that the American family does not suffer from overeating. In most cases the diet represents less than 3,500 calories per adult male. He finds that with present day prices, it requires from 50 to 60 cents per adult male per day for food in order to obtain a satisfactory, well-balanced diet. For a family consisting of husband, wife and three children under 15, this would necessitate an annual expenditure of $610 per annum for food alone, and an annual income varying from $1,800 to $1,850. Since the average incomes are approximately $1,350, it is obvious that the diet must be restricted, or deficient in some other way. The expenditure for clothing per adult male in 1918 varied from $30 to $180. The average expenditure for clothing for the modal income is approximately $90. Although there is little overcrowding in American workingmen's families, the annual rents paid varied from $105 to $355. For the modal income the annual rent was about $200 per annum. It is believed that American families consume enough fuel and artificial light to be comfortable. The amount of money spent for the care of the health varies considerably in different income groups and in different localities. It is believed to be inadequate for the best interests of the family. It varied from approximately $23 to $125 per annum per family. The average expenditure in this direction would probably vary from $45 to $55 per annum per family. The amount spent varies directly with the size of the income. The different forms of insurance, such as life and health insurance, are also found to be inadequate. The nature of amusements varies considerably. The cost for movies varies not only with the income group, but also with the section of the country. In Philadelphia the limits vary from $0.38 to $37.32 per annum. In Boston they vary from $0.87 to $34.39 per annum. The average for all incomes in Philadelphia was $10.18 per annum and $6.49 for Boston. From the study Dr. Meeker concludes that the wages of the lower income groups must be increased, and that a standard of living must be determined.—*Modern Medicine*, July, 1919. (*M. P. H.*)

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Child Employment Out of School Hours.—Dr. Burpitt in his 1918 report to the Newport (Mon.) Education Committee discusses the effect of employment of school children out of school hours and summarizes his conclusions as follows:

"The body reacts on the mind, and children who work too long, or too hard, are too tired to get the full benefit from their education, and are unfairly handicapped in their competition with those who do not work. Physically, although it is not so easy to show ill-effects or excessive work on a large scale, yet a considerable undermining of the vitality and preparation for future breakdown, occurs, and those in constant contact, such as the teachers, are able to give cases of children who have suffered impairment of health since commencing employment. It is, therefore, essential that every employed child should be under supervision, to ascertain that he is placed in work for which he is fitted, and that the conditions do not become too onerous."—*Medical Officer*, July 5, 1919, 2. (*D. G.*)

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Is the Visiting Nurse a Public Health Nurse?—In the *Public Health Nurse* for July, 1919, Dr. H. W. Hill discusses the question whether the visiting nurse is a public health nurse, and Miss Annie M. Brainard tells why the visiting nurse is a public health nurse. Dr. Hill maintains that a visiting nurse is essentially one whose work is therapeutic in character; whereas a public health nurse is chiefly interested in discovering dangers to health and educating her patients to protect themselves against these dangers. The public health nurse should, however, be able to do actual nursing in an emergency. Miss Brainard maintains that the visiting nurse is a public health nurse because three fourths of her time is spent in instruction and only one-fourth in actual nursing. Besides, the concept of the term nurse now means one who protects health as well as one who cares for the sick.

(*M. P. H.*)

Physical Defects Among Draft Recruits.—A bulletin recently issued by the Surgeon-General's office records the results secured in the physical examination of the first million draft recruits. The findings to be noted below are the result of the reëxamination given at the mobilization camps. The figures show strikingly the large prevalence of goiter in the region of the Great Lakes and the Northwest. Twenty-two per cent of the rejections were caused by a mechanical defect such as flat foot, defects in the bones and joints, hernia, etc.; 15 per cent were due to imperfections of the sense organs; 13 per cent were due to defects in the cardio vascular system; 12 per cent to nervous and mental troubles; 10 per cent to communicable diseases, almost entirely tuberculosis and venereal diseases; 8.5 per cent were rejected because of developmental defects and 6 per cent on account of skin diseases and imperfections of the teeth.

The comparison between men coming from rural and urban communities is interesting. The local boards rejected from certain selected urban districts 21.68 per cent and from rural districts 16.89 per cent. Among urban recruits the total number of defects found was 38.3 per 100, while among rural recruits there were 33.3. Men from the large cities show a much greater proportion of hernia than do men from the rural districts. Venereal diseases are found predominant in the Southern States, while the Northwest has a much lower percentage than any other section of the country. Men from the cities showed 30 per cent more defective vision than men from the country.—Editorial, *Jour. A. M. A.*, July 26, 1919, 272. (*D. G.*)

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Infant Welfare Campaign in Oklahoma.—The Oklahoma Tuberculosis Association has been waging an unusually effective infant welfare campaign this summer. The work is being conducted in Eufaula, Checotah, Clinton, Weatherford, McAlester and Hartshorne. These places represent the more rural parts of the state and are located in McIntosh, Custer and Pittsburg counties. One month is spent in each county; the work is being done in places where modern health activities have never been conducted before.

The mothers are reached in the following way: A local committee is appointed which sends out double post cards to all the mothers in the city asking them whether they care to have their babies examined. If an affirmative reply is received, a definite appointment for a medical examination is made. The stores in the downtown district are also placarded with announcements of the campaign. Hand bills containing the same information are left at each house. Announcements are made from the pulpits, and stereopticon notices are given in the motion picture theatres. A constant publicity campaign in the newspapers is also conducted. The physicians of the community agree to conduct the medical examinations, and the Tuberculosis Association furnishes trained public health nurses. A clinic is established at which there are conferences, demonstrations, exhibits and medical examinations. Samples of model beds, refrigerators, baby clothes, milk bottles and other important things are on exhibition. In addition the nurses visit the mothers in the homes and conduct demonstrations there. The work is under the immediate supervision of Edith Swaine, and Mary B. Hofweister, both of whom are trained and experienced public health nurses. (*M. P. H.*)

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The Agricultural and Industrial Community for Arrested Cases of Tuberculosis and Their Families.—One of the greatest problems in the anti-tuberculosis campaign is the proper care and treatment of patients after they leave the sanatorium. It is a normal thing for the post-sanatorium case, who returns to the city and mingles with old friends, to want to do exactly the same things they do. Very often it is impossible for him to have the environment necessary for the best care and improvement. Too often he is unable to resume his former occupation, or if he is, the conditions surrounding the occupation are not conducive to continued progress. Yet it is exceedingly important for the mental health of the individual, and hence for his physical health, that he realize he is of value to the community and an economic asset rather than a burden. The solution apparently rests in the formation of special communities where these tuberculous individuals may live and work, bring up their families, have the necessary medical and nursing care, and protect their children against infection by open air schools, expert care, and adequate medical attention. Dr. H. A. Pattison suggests that such a community should be located in hilly, woody country, about 100 to 200 miles from a large city, on the main line of an important railroad. It should be able to care for a population varying from 500 to 4,000. There should be an expert, modern health department, excellent water and sewer facilities, periodic and thorough medical examinations of every man, woman and child, well equipped laboratory and hospital facilities and open air schools. Industries should be established and operated in such a way as to benefit the people physically as well as economically. The town should be governed as a business organization and should have a managing director, a director of industry and public works, a director of the department of public health, a

director of education and publicity and an auditor. The keynote of the entire plan, if it is to meet with success, must be social coöperation. The residents for such a community could be obtained from the various sanatoria. It is believed that there would always be a large waiting list among the tuberculous who would be anxious to live in these communities. —*Bulletin 32, Federal Board for Vocational Education*, June, 1919. (*M. P. H.*)

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Nervous Disorders of War in Relation to Employability of Soldiers.—It is natural for the employer to be intolerant of the peculiarities of those suffering from functional nervous disorders, yet it is his duty to coöperate in every way possible with the physician in the restoration to industrial efficiency of those soldiers who during the war have been incapacitated in this way. Every man thus restored is a valuable asset to the community, who otherwise becomes not only an actual loss, but a source of discontent. In many instances all that is necessary is a slight modification of the conditions of work, and a sympathetic understanding and consideration by employers and fellow workmen.

In some cases, however, the expert skill and advice of a neurologist are necessary to reëducate these men and help them to a new mental attitude toward themselves and life. This readjustment does not require long or complicated treatment and has proven most successful.

In practically every instance men suffering from functional nervous disorders have been restored to their full efficiency.

It is, therefore, a patriotic duty that this restoration be done after the war in the same spirit that personal sacrifices were made for the sake of military efficiency during the war.—Tom A. Williams, M. D., of Washington, before *American Academy of Medicine.*

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Does Influenza Predispose to Tuberculosis?—This interesting question which was given such wide and unjustifiable publicity during the pandemic of 1918, has been answered by Buffalo, N. Y. From October 1, 1918, to April 1, 1919, 33,880 cases of influenza had been reported to the health department. Of these 3,179 had died. In the early spring of 1919, each of these cases was visited to determine whether there had been any after-effects. Only 748 of the 33,132 survivors or 2.3 per cent declared any after-effects at all. Two months after this first visit, these cases were inspected again. Of them, 501 had fully recovered, 216 reported that they were improving, and 4 had died. Of the 748, there were 220 who claimed some form of lung trouble. On examination, 28 were found to be tuberculous. Of these 11 had had tuberculosis before they had influenza. There were only 8 cases of new tuberculosis, and some of these gave a history of tuberculosis in the family. It is true that in a normal population of 33,880, it would be expected that 8 cases of tuberculosis would develop. It would seem therefore that influenza did not predispose to tuberculosis. If there had been the same number of cases of typhoid fever, or measles or any other major disease, the after-effects would have been much more severe.—Dr. W. A. Evans. *Literary Digest*, September 13, 1919.— (*M. P. H.*)

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Infant Death Rate Low in Newark.—According to a statement credited to Dr. Julius Levy, head of the bureau of child hygiene of the Newark Department of Health, the infant death rate of that city has been diminished from 123 per 1,000 births in 1910 to 77.1 in 1919, due to the intensive campaign which has been waged to conserve child life. This is true in spite of the fact that 50 per cent of the population in Newark is foreign born, and that 50 per cent of the children are delivered by midwives. The infant welfare campaign has brought about a great improvement in the methods and practices of midwives. The infant death rate for Newark during the first six months of 1919, compared to other large cities, follows: Newark, 77.1; St. Louis, 84.2; New York City, 87.2; Manhattan, 92.0; Philadelphia, 88.9; Baltimore, 94.4; Cleveland, 96.9; Detroit, 107.2; Buffalo, 121.0; Pittsburgh, 133.1; Chicago, 100.2.—*New York Times*, August 23, 1919. (*M. P. H.*)

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Status of Prophylactic Vaccination Against Influenza.—Many vaccines for prophylactic use against influenza-pneumonia have been developed and used. Owing to the lack of knowledge regarding the definite etiological factor, it has been impossible to develop a vaccine from such an organism. Vaccines made from the Pfeiffer bacillus, and from mixed cultures containing pneumococci, hemolytic streptococci, *Staphylococcus amens* and Pfeiffer's bacillus, have been used without definite valuable results. Carefully controlled experiments in Massachusetts, and at the Pelham Bay Training Station, and at Paris Island and other places, have shown that influenza occurred just as frequently among the vaccinated as among the unvaccinated, and that the deaths from influenza were about the same in both groups. Similar results were obtained with the use of commercial vaccines. Where vaccines have been tried under perfectly controlled conditions negative results have always been obtained.—Dr. G. W. McCoy, *Jour. A. M. A.*, August 9, 1919.—(*M. P. H.*)

STATE HEALTH NOTES—LEGISLATION.

Massachusetts.—Following is a summary of new laws which pertain to public health, enacted by the Legislature during the session:

General Act, Chapt. 27. An act relative to the duties of members of Boards of Health acting as inspectors of slaughtering. Inspector, appointed by the Board of Health, shall be present at all licensed slaughter houses upon the days designated for slaughter by license, and examine carcasses of all animals. May seize and cause to be destroyed any carcass, meat or product thereof found to be diseased, corrupted, unwholesome or unfit for food.

G. A., Chapt. 28. An act relative to the cold storage of articles of food. State Department of Health shall inspect and supervise all cold-storage ware-houses. No article of food intended for human consumption shall be placed in or retained in, cold storage, if tainted, diseased or otherwise unwholesome.

G. A., Chapt. 32. An act relative to county tuberculosis hospitals. Time for construction, additions, etc., of buildings extended to April 1, 1921. "Adequate" hospital provision means at least one hospital bed for each four deaths from tuberculosis in the community served by hospital, as determined by average number of deaths per annum for 1911 to 1915 inclusive.

G. A., Chapt. 123. An act relative to the sale of materials used in the manufacture of mattresses and similar articles. No second-hand material may be sold or offered for sale, if same is represented as new material. Punishable by a fine of not more than $500.00 or by imprisonment for not more than six months or by both.

G. A., Chapt. 142. An act relative to the registration of nurses. A nurse to be eligible for registration must be at least 21 years of age, good moral character, and a graduate of a training school for nurses approved by the board. An applicant failing to pass the examination may take another examination within a year without paying a second fee of $5.00. There shall be a yearly fee thereafter of fifty cents.

G. A., Chapt. 195. An act to provide for the regulation and licensing of day nurseries. Shall be licensed by local boards of health and renewed annually. A fee of $1.00 is charged for issue or renewal. Nurseries shall be visited or inspected at least once a year. After 30 days' notice to licensed day nursery and opportunity for hearing, the local board may revoke license.

G. A., Chapt. 217. An act relative to the powers of cities and towns in respect to public recreation, playgrounds, and physical education. Any city or town may acquire land and buildings within its limits by gift, purchase or right of eminent domain, or may lease same or may use land or buildings already owned by it, for public playgrounds or recreation center and may charge admission for activities relative to recreation etc. Also it may employ teachers or other officials and fix their compensation.

G. A., Chapt. 304. An act to provide for the admission to certain state institutions of persons affected with incurable diseases. A person who has been a resident of commonwealth for not less than two years and who has any incurable disease except mental defect or leprosy, may be admitted to such state institution under the supervision of the State Board of Charity as may be designated by the board. Expense of maintenance shall be paid by patient or by relatives bound by law to maintain him. If they are unable to do so, then the city or town where he has a legal residence, shall pay, and in case he has no such residence in a city or town, the expense shall be paid by the commonwealth.

G. A., Chapt. 317. An act relative to the granting of plumbers' licenses to certain soldiers and sailors. A credit of 5 per cent to be given to each applicant who has served in the Army or Navy in time of war, and honorably discharged or released from active duty.

G. A., Chapt. 318. An act to provide for the establishment of free clinics and a registry for the feeble-minded. The Commission on Mental Diseases may establish and maintain free clinics for the feeble-minded and employ such persons as may be required to conduct them. The commission shall establish and maintain a registry of feeble-minded, records not to be open for public inspection.

G. A., Chapt. 333. An act to make certain substantive corrections in existing laws. (7) Amendment allowing burnt, dilapidated or dangerous building to be adjudged a nuisance. (9) Amendment providing that five or more persons may form a corporation for cremation.

G. A., Chapt. 351. An act to regulate the sale and cold storage of fresh food fish. Different grades of fish designated: "First grade," new fish, suitable to be offered for sale as number one fish or shore fish; "second grade," all other fish in suitable condition to be offered for sale as fresh fish; "third grade," fish which are suitable for splitting, salting or otherwise preserving but not for fresh fish. Grades must be stated when offering for sale. Cold storage fish must be so labeled. State inspector of fish to be appointed, by the governor and council.

G. A., Chapt. 360. An act regulating the sale of alcohol. Registered druggists alone may manufacture or sell wood alcohol, and he is licensed to do so by local Board of Health. Fee required of $1.00

yearly. Licenses may be revoked by board. Denatured or wood alcohol must be labeled in red letters, "Deadly poison," name and place of business of vendor and number of license. Also it must bear the words "Not for internal use. Causes blindness. Keep from the eyes."

Special Act, Chapt. 1. An act making appropriations for sundry emergency expenses on account of present war and epidemic of influenza. $10,000 for reception and entertainment of soldiers and sailors, and $5,000 for expenses incident to the spread of influenza in the commonwealth.

S. A., Chapt. 25. An act to abolish the board of health and inspector of milk of the city of Quincy and create the office of health commissioner.

S. A., Chapt. 95. An act to establish the office of commissioner of health for the city of Cambridge.

S. A., Chapt. 134. An act authorizing the city of Quincy to establish a hospital.

S. A., Chapt. 153. An act making appropriations for maintenance of departments, etc.:

State Department of Health.

Division of Administration	$19,500.00
Division of Hygiene	27,850.00
Division of Communicable Diseases	101,350.00
Antitoxin and vaccine lymph	24,300.00
For services and supplies in connection with antitoxin, etc.	26,000.00
Mfg. and distribution of arsphenamine	19,200.00
Division of Food and Drug Insp.	34,000.00
Division of Water Supply and Sewage Disposal	82,000.00
Total	$334,200.00

In addition there were resolves relating to half a dozen reports by the State Department of Health.

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New Mexico.—Chapter 85 of the laws of this state, enacted the present year, provides for the creation of a State Department of Health, to be composed of a State Board of Health and a Commissioner of Health. Three persons, not more than one of them to be a licensed physician, will comprise the board, the members of which are appointed by the governor for terms of six years, staggered. The term of the medical member is to expire on January 1, 1921. Organization is provided for, to include a chairman and a secretary, with at least one meeting each year. The board is authorized to hold hearings, and make and enforce regulations relating to quarantine, sanitation and the public health. The board is to serve without salary but members shall receive actual and necessary traveling expenses while absent from their homes on meetings of the board.

The State Board is to appoint a commissioner, to continue in office at its pleasure, salary not to exceed $3,000 a year. He must be a person having experience and special training in sanitary science and public health administration. He is to be the administrative head and shall devote his entire time to his official duties. He is to take oath and furnish surety a bond. He is empowered to employ assistants at a total of salaries not exceeding $10,000 a year, and shall sign the vouchers for expenditures.

His powers are outlined quite fully in the act, and his duties are to include the collection, compilation and tabulation of reports on marriages, births, deaths and morbidity. His powers are quite broad and cover the usual functions of a state board. He is to publish regulations and orders, and is quite free to use the press in such ways as may seem desirable to him.

Provision is made for county health officers and municipal health officers, to be appointed with the approval of the State Board. The medical member must be an M. D. with his degree from a college which requires a four-year course or a three-year course supplemented by at least two post-graduate courses, and he must have had at least two years' hospital experience.

There are further sections with reference to publication and enforcement of regulations, the reporting of vital statistics, abating of nuisances and other matters generally included in the fundamental acts establishing health departments. Freedom is permitted individuals to select the physician or mode of treatment without interference. Where right of entry is refused to a health officer, a warrant may be procured from the court and some constituted health authority is to accompany the sheriff to direct him in the service of the writ. Isolation may be enforced by a writ of the court. "Suitable provision" is to be made for the inoculation of the inhabitants of the state with cow-pox vaccine. Exemption from vaccination of children may be secured by filing the certificate of a duly licensed and practising physician.

Provisions are made for the transportation of the dead, for the costs of the administration of the law, and for raising funds during an epidemic, for which money may be borrowed if necessary up to a limit of $25,000. The act is supplemental to a previous one in items not repealed. In order to make the act operative at once, the legislature declared an emergency to exist and put the act into full force and effect from and after the day of its passage and approval.

STATE HEALTH NOTES—GENERAL.

California.—The State Board of Health has been using a floating laboratory (illustrated in the JOURNAL for September, page 649) in its parasitological work in the Delta regions of the San Joaquin and Sacramento rivers, because it will be impossible to carry on field work in this inaccessible region without having a laboratory close at hand where living quarters can be provided. One or two men have lived on the boat ever since it was placed on the Delta, excepting during the summer months when the weather has made it almost impossible for the workers to continue their labors. The boat is equipped however for examinations and an increased number will be made when the work is taken up again in the fall. The object of the work on the laboratory is to make a survey by fecal examinations of the intestinal parasites of Japanese, Chinese, Hindus, Mexicans and other races resident in California. The Delta was chosen for this work on account of the mixing of population there. It is planned to make between five hundred and a thousand examinations from each of these races covering not only the Delta region but other parts of the state to determine just what the menace is from the foreign population in California in the spread of diseases produced by animal parasites. So far, in actual connection with the work on the floating laboratory about five hundred fecal examinations have been made from Japanese, both for intestinal protozoa and intestinal worms. Some Hindu examinations have been made and numerous futile attempts to get samples for examination from the Chinese have been taken up. In addition to the actual collecting of samples for examination, inspections and reports have been made of the sanitary conditions of a number of camps in the Delta of the different races, especially in regard to the methods of fecal disposal and other things which would have to do with the spread of parasitic diseases. The Bureau of Sanitary Engineering is working on a water-purification plant which will be installed on the laboratory early in the fall and which will be a demonstration to the people there of a simple method of water purification. The work consists not only in the investigation of the prevalence of animal parasites, but has also to do with the inspection and control of the sanitary conditions influencing their spread. Another feature of the work of the laboratory is making it a center of exhibits for animal parasites. This has been done to a certain extent and plans are under way for the carrying out of that feature more completely when the work is resumed on the boat in the fall. It is planned during the next winter to use the laboratory as the center for the collection of a thousand or more further samples from Orientals in the Delta, especially the Chinese, and from Mexicans, so that the work will probably be carried on in the laboratory for the greater part of the coming year. The utilization of this boat has made possible for the men of the Division of Parasitology to come into very close contact with the people of this region to study carefully the sanitary conditions and to obtain more easily the coöperation which is so difficult in dealing with Orientals. If when the preliminary report of this Oriental work is ready the State Board of Health determines to adopt active methods for further examinations, treatment and control, the laboratory will make possible a more extensive campaign throughout the whole Delta region and other regions of similar character in the state.

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District of Columbia.—The Congress of the National Women's Trade Union League, meeting in Washington October 23–29, has some broad health propositions in its general plans. Each organization is urged to prepare material on these subjects:

Employment of women before and after child birth, with reference to restrictions, provision for care and pending or proposed legislation.

Employment during the night.

Employment of women in unhealthful processes. There will be discussion as to whether improvement can be secured through international action.

Employment of children is also to be taken up in items, first, age limit, then night employment, and unhealthful processes, and whether the situation is to be bettered by international action.

The 48-hour week will be one of the topics, and the question of providing against unemployment, and other allied subjects. Further along the line of direct health matters there will be a consideration of the question whether the importation of white phosphorus matches has been discontinued.

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Florida.—On August 16, the Escambia County Tuberculosis Association was formed at Pensacola. This association is planning to establish a clinic and nursing service. It is the fifth county to organize in this way for tuberculosis work. Volusia County has secured enough signatures to call for a referendum vote for a county sanatorium. The executive secretary of the Florida Anti-Tuberculosis Association, Mr. R. H. Hixon, had the energy to secure clergy rates for its workers when it is necessary for them to travel by rail. These rates had been refused, but gathering evidence about the practice in other sections of the country Mr. Hixon made a personal appeal to the local administration and carried his point.

Georgia.—A conference of the state and county health officers was held at the headquarters of the State Board of Health in Atlanta, Ga., on July 30–31, Dr. M. F. Haygood being the presiding officer. Dr. J. W. Hurt, visiting physician, spoke on the medical inspection of school children. Surgeon Joe P. Bowdoin, venereal control officer for Georgia, spoke on V. D. legislation and deplored the fact that appropriations are difficult to obtain in Georgia. Dr. W. A. Davis, director of the Bureau of Vital Statistics, called attention to the fact that city clerks are registrars in cities and towns, and in the outside districts the justices of peace are to undertake this work.

Mr. Joseph P. Faulkner, secretary of the Raoul Foundation, discussed the need of organization for the control of tuberculosis, and said that despite the fact that Alto could become the Saranac of the South, it is difficult to obtain financial support for the work. Dr. Haygood closed the morning session of the first day with a review of the small things that handicap the health officer.

The afternoon was given over to laboratory discussion; Mr. T. F. Sellers, director of laboratories, discussing the instructions for sending samples; and Mr. L. E. Webb, serologist, speaking of the Wassermann reaction and later outlining the interpretation of laboratory reports. Dr. C. C. Applewhite, U. S. P. H. Service, spoke of the privy and discussed the forms applicable for small towns and cities and the types suitable for the rural districts.

On the second day of the conference malaria was considered by Dr. G. M. Anderson, commissioner of health of Moultrie, Ga., with especial reference to improvements in his own city; Dr. John Schreiber spoke about physical education in the schools, and noted that the country boy could always be distinguished by his posture; Dr. R. W. Todd, commissioner of health at Brunswick, Ga., read a paper on the sanitary handling of food products; Dr. O. H. Cheek, commissioner of health at Dublin, Ga., spoke about hookworm eradication; Dr. T. W. Taylor of Sylvester, Ga., started a discussion about sanitary closets"; and Dr. R. A. Herring, commissioner of health at Milledgeville, Ga., presented an important paper on "Communicable Diseases." Other speakers were Dr. R. L. DeSaussure, commissioner of health for Floyd County, Ga., and Dr. B. F. Bond, commissioner of health of Americus, Ga., whose topic was typhoid vaccination.

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Illinois.—The State Department of Health has just issued a thirty-two page circular on the care of babies under the title "Our Babies—How to Keep Them Well and Happy." This is an entirely new circular and takes the place of the one issued in 1917, hundreds of thousands of which have been distributed throughout the State. The Annual Better Babies Health Conference was conducted by the State Department of Public Health in connection with the Illinois State Fair. These conferences have become annual affairs, and the conference this year was larger than ever before. A special feature has been the examination of babies by the attending physicians.

Samuel J. Kessinger, of Litchfield, has been appointed acting chief of the Division of Public Health Instruction of the State Department of Public Health.

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Indiana.—At the conference in Hammond, Ind., of the Lake County Public Health Society on the evening of September 9, the meetings of three sections were conducted, public health, industrial and nursing. In the first-named section, the chairman, C. M. Reyher, M. D., health commissioner of Gary, Ind.; William Buchanan, health commissioner of Hammond, Ind.; F. A. Malmstone, M. D., health commissioner of Griffith, Ind., and R. P. Hale, Lake County health commissioner were all speakers. In the industrial section Ira Miltmore, M. D., of the Indiana Steel Co., Gary, Ind., chairman; together with Mr. John A. Gross, general manager of the American Sheet Mill, Gary, Ind.; and H. C. Groman, M. D., were speakers. In the nurses' section Miss Della Glenn, chairman; Miss Hauswald of East Chicago, Ind., and Miss Pauline Kuehler of Whiting, Ind. and Miss Johnson, just returned from service with the A. E. F. addressed the gathering.

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Kansas.—When a person who has had the influenza laughs at the idea of going to a doctor and feels inclined to crack a joke at the pills and potions he would receive let him remember that the American public each year buys thirty times the pills and potions prescribed by the entire medical profession and that the aftermaths of the "flu" are serious and failure to see the doctor now may cause him to later become one of those who swell the list of buyers.

A study of egg substitutes would indicate that manufacturers are exploiting the name of a highly valuable food to further the sale of their products. The claim of most of the manufacturers is that one teaspoonful of the egg substitute is equal to one egg in baking and cooking. That this claim is not always true is shown by one case in which claim was made, on the carton, that the contents of the package was equivalent to 12 eggs. Analysis showed that on a protein basis it was equal to only 1.7 eggs. On a basis of fat value it was equal to but fourteen hundredths of an egg, while the fuel value was equal to only 2.6 eggs. (*M. T.*)

Louisiana.—The program for the meeting of the American Association Medical Milk Commissions, which meets in New Orleans at the same time with the American Public Health Association, October 27–30, 1919, is the following:

President's Address—A. F. Furrer, M. D., Cleveland, Ohio.
Report of Commissions.
Inspected Milk—L. R. DeBuys, M. D., New Orleans, La.
Changing Methods in the Production of Certified Milk—Prof. F. W. Howe, Boston, Mass.
Dry Sterilization of Dairy Utensils—Harris Moak, M. D., Brooklyn, N. Y.
Human and Bovine Tuberculosis—A. Review, Prof. M. P. Ravenel, University of Missouri, Columbia, Mo.
Production of a Safe Milk for Infants—W. H. Price, M. D., Assistant Director of the Service Investigations of Child Hygiene.

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Massachusetts.—Harvard University announces that Dr. Thomas M. Legge, chief medical inspector of factories in Great Britain, has been invited to give a course of Lowell lectures and the Cutter lectures in preventive medicine for the coming year. These lectures will be given under the auspices of the School of Public Health of Harvard University and the Massachusetts Institute of Technology, and the division of Industrial Hygiene. Dr. Legge will lecture in Boston on November 18 and ensuing dates upon the following subjects:

Twenty Years' Experience of the Notification of Industrial Disease.
Twelve Years' Experience of Workman's Compensation Act and Industrial Diseases.
Medical Supervision in Factories.
Industrial Poisons and Their Prevention.
Anthrax.
Fumes and Gases.
Industrial Fatigue.
Industry as a Subject for Art.
Manufacture under the Mediaeval Trade Guilds.

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Michigan. Health District No. 1-A, Grosse Point.—Lying to the east of Detroit along Lake St. Clair are the beautiful suburbs of Grosse Point Park, Grosse Point Village, Grosse Point Farms and Grosse Point Shores, comprising four incorporated villages, each with its fine municipal building and boards of trustees. In 1916 an epidemic of typhoid fever occurred in these villages and its cause was traced to the milk supply. The advisability of establishing adequate health protection was very apparent and the heads of the four village governments had a conference to formulate plans for such protection. Under the leadership of Mr. George Osius, the president of Grosse Point Shores, a bill was drafted and passed by the State Legislature, authorizing the forming of district health boards by contiguous villages and townships. Health District No. 1-A, Wayne County, Michigan, comprising the four Grosse Point Villages, was at once organized with the following officers: George Osius, president; Paul H. Deming, treasurer; Dr. L. E. Maire, secretary; and Richard T. Connor. Dr. Don L. Griswold was engaged as full time health officer. Dr. Griswold had been prominent in public health and research work for several years. He was for some time with the Rockefeller Institute and while there was sent on research work to the West Indies. After serving six months at Grosse Point he joined the Colors and was succeeded by the present health officer, Dr. Benjamin H. Warren. For several years there has existed in the Grosse Point Villages a most worthy organization, the Mutual Aid and Neighborhood Club, composed of women and sustained by private subscription. Besides doing much in worthy charity and social and child welfare work, this organization has established a Cottage Hospital for maternity cases, and infant and child welfare clinics. In coöperation with the Board of Health, tonsil, adenoid and circumcision cases are operated at this hospital. The hospital has the hearty coöperation of prominent Detroit surgeons, Drs. Shurley, Hickey, Ware, and McCeue, being on the staff. Dr. Belanger, prominent for many years, in Grosse Point, has given his hearty coöperation in all public health activities. The health department also has fine coöperation from the Police Departments of the four villages. There are about twelve hundred school children in this health district. Each of the four school buildings is equipped with a dental room and a full time dentist is employed by the health district. Regular school inspections are made by the health officer and a mental survey is made in each school. The drinking water and milk supply of the district are tested regularly. Arrangements are about completed to have the garbage collection system of Detroit extended to this district. The Detroit Board of Health has extended splendid coöperation with the Grosse Point Board.

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Minnesota.—In the *Minnesota Public Health Association Journal* for March 20, 1919, the idea that persons suffering from tuberculosis should not be vaccinated against smallpox because of the supposed bad effect of vaccination on the patient, was disproven. Now the *American Review of Tuberculosis* for February states that tuberculosis patients can also endure the anti-typhoid inoculation with-

out bad effects or retardation of the arresting of the disease. It would appear that inactive pulmonary tuberculosis exerts no appreciable effects upon the course of typhoid fever, but that active pulmonary tuberculosis may influence typhoid and render recovery less likely.

Cancer is one of the chief causes of death, the annual mortality in the United States being estimated at 80,000 as compared with about 150,000 deaths from pulmonary tuberculosis. Cancer is essentially a disease of adult life. Of the 80,000 deaths approximately 85 per cent at ages of 45 and over. At ages over 40 cancer causes one death out of every eight among women and one out of every fourteen among men. Cancer appears to be on the increase in every civilized country. Whether this increase is real or can be attributed to improved medical diagnosis and better statistical methods is a source of much controversy. If people could be taught to consult with their physicians when suspicious lumps developed many a case of cancer that would become hopeless could be detected in time and removed.—*Minnesota Health Journal*, July 24, 1919. (*M. T.*)

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New Mexico.—The State Board of Health, created by an act of the last State Legislature, has completed its organization, selected its staff and commenced actual work, with Dr. C. E. Waller as commissioner of health. Dr. Waller has appointed Harold S. Gray as head of the Division of Sanitary Engineering and Sanitation and Dr. G. S. Luckett as head of the Division of Preventable Disease. Mr. Gray has been connected with the California State Board of Health while Dr. Luckett has been employed by the Alabama board. Dr. Waller will assume temporary charge of the divisions of Vital Statistics and Public Health Education. The Board of Health has adopted regulations for the reporting of births and deaths following those now in use in the registration area. The provisions of the model law recommended by Federal health authorities have been embodied in the regulations for the reporting of preventable diseases.

In the Division of Preventable Diseases it is proposed to establish in the near future a Public Health Laboratory. Plans for the establishment of this laboratory in coöperation with the University of New Mexico, at Albuquerque, are now under consideration. It is proposed to establish also the Division of Public Health Nursing in the near future.

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New York City.—Dr. R. S. Copeland, commissioner of health of the City of New York, has announced that in the near future the Health Department is to be housed entirely in its own building, which will be erected at a cost of $1,000,000 and will be the finest health headquarters in the world. The structure will be at least twelve stories high and will be located on the north side of Thirtieth street between Sixth and Seventh avenues.

National Information Bureau.—To protect the contributing public and to assist in the conservation and proper distribution of the charitable resources of the country during the reconstruction era the National Investigation Bureau has been reorganized and launched on a permanent program under the new name of the National Information Bureau.

The reorganized agency will undertake to accomplish three purposes:

1. The establishment of reasonable standards of administration and work for national social and philanthropic agencies and the endorsement of agencies which meet these standards.

2. The protection of the public from imposition.

3. The assisting, so far as may be possible, of national agencies in their efforts to adapt their programs and their work to each other and to the communities in which they are engaged.

Officers of the bureau are as follows: President, Gustavus D. Pope, Detroit; first vice-president and treasurer, Paul L. Feiss, Cleveland; second vice-president, Paul Cravath, New York; secretary, Allen T. Burns, New York; director, Barry C. Smith, New York. Headquarters will be maintained in New York City.

In connection with the International Exposition of Municipal Equipment, which is to be one of the grand divisions of the Merchants and Manufacturers Exchange in the Grand Central Palace, New York City, it is proposed to establish a permanent health center which will serve to demonstrate the kind and amount of apparatus and equipment necessary for such an undertaking. The general arrangement of the health center will be under the direction of Mr. B. R. Rickards of the New York State Department of Health.

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New York State.—During the last two years it has been impossible to continue the conferences of the health officers and sanitary supervisors in the various districts of the state on account of the war activities. During September and October this year the fifteen sanitary supervisors are holding in their districts their usual conferences with their health officers. The conferences aim to secure the adoption of a uniform sanitary code by municipalities which have not already done so, and also the adoption of amendments which will bring the codes up to date, by cities which have adopted the code,

suggested by this Department. To date this code has been adopted by 750 municipalities.

Another measure presented at these conferences is the uses which can be made of public health nurses in rural communities. It is proposed to have the public health nurses of the district attend these conferences. Local problems are also discussed and the meetings are illustrated by moving picture films on venereal disease, which has been so successfully used in the A. E. F.

A tabulation of the reports of health officers in their sanitary reports for the year 1916 has recently been compiled. From the statement of health officers in the rural districts in the state of New York it would appear that during that year the average amount paid per capita for health work in their municipality was nineteen cents. In one village the per capita expense was $1.34 according to the statement of the health officer.

An outbreak of diphtheria at Crystal Springs, Wyoming County, has recently been checked. The outbreak was limited to 17 cases and 35 diphtheria carriers were discovered. Only one case occurred on a dairy farm. The action of the local Health Board was prompt and effective.

Last year the department prepared a score card for the health activities of the various cities of this state. Dr. C. C. Duryee, state sanitary supervisor, was detailed to interview the health officers and mayors of the cities for the purpose of scoring this work. The results have been most gratifying. Great interest was aroused and many improvements have been instituted. Dr. Duryee has again been assigned to this duty and during the next few months will again interview the mayors and health officers for this purpose. The score card has been improved and it is believed that the results will be even more effective than in the past.

A health meeting was held on the Tonawanda Indian Reservation on August 27, under the direction of Mrs. E. M. Finigan and Miss Mathilde Kuhlman, supervising nurse. The meeting was opened by Mrs. Finigan who briefly outlined the purposes of the survey, meeting and clinic. The chief of chiefs, Mr. Solan Skye, then addressed his people in the Indian language asking them to give attention to the advice given them by the speakers of the evening and to bring cases for examintion at the following day's clinic. The other speakers were Dr. Edward Clark and Dr. Halsey J. Ball, state sanitary supervisors. The state health film, "In His Father's Footsteps," was also shown. The clinic which was held on the following day was very well attended.

During August a committee composed of representatives of various associations in Ithaca having health committees was formed for the purpose of coördinating the work of these organizations and to promote health interests generally.

In order to overcome hay fever among tuberculosis patients in the vicinity of Saranac, the health officer of that town, Dr. C. C. Trembley, has adopted the plan of offering to pay 25 cents a bunch of 100 rag weed stalks.

The establishment of a general clinic in Elmira to include the child welfare work and measures against tuberculosis and venereal disease was recently authorized by the Board of Health in the city of Elmira. The child welfare and tuberculosis work is being conducted at the present time under the direction of Miss Anna M. Thompson, public health nurse.

The first operative clinic ever held in a rural district in Monroe County was recently held at Henrietta at which time 20 children were examined at the Grange Hall where a clinic was held. Surgeons from Rochester were present, assisted by nurses from a number of other communities. Miss Roberta Leslie, supervisor of community nurses for Monroe County, was the originator of the idea of opening an emergency hospital for the purpose in the community where the children lived. The Henrietta clinic was followed by one at Honeoye Falls, at which 24 children were present.

Miss Hazel I. Stewart, county nurse for Steuben County, in her annual report for the year ending July 1919 shows that 107 new positive cases of tuberculosis and 93 suspects were discovered during the course of her year's work. In addition she visited 192 patients, called at 134 homes, visited 29 schools, interviewed 202 physicians and health officers, made 258 coöperative visits, and investigated 10 factories, besides giving 27 talks and attending 23 meetings and 26 tuberculosis clinics.

Recent visits to the venereal clinics throughout the state show a healthy growth. In most instances the number of patients is steadily increasing, the increase being due to greater publicity, educational efforts and last but not least, due to the interest of the medical officer in charge of the clinic. A physician either can make or break a clinic; the impression he makes upon the patient on the occasion of his first visit will often determine how much follow-up work will be necessary in that case.

A course in Public Health Nursing is offered by the University of Buffalo, in coöperation with the Buffalo City Department of Health, the Department of Hospitals and Dispensaries, the District Nursing Association, and the Buffalo Chapter of the American Red Cross.

The course started on September 29 and continues for sixteen weeks. About half the allotted time is

devoted to lectures and class work, and the balance to field work. A certificate will be given to students who satisfactorily complete the course. Applicants must be registered nurses in New York State, or registered in states having equivalent standards, and must be in good physical condition. A limited number of scholarships will be awarded for exceptionally well qualified candidates who are unable to take the course for financial reasons. The class is limited to 30.

At the recent tuberculosis clinics held at Gouverneur and Ogdensburg, 24 physicians attended personally and took part in the demonstration of the newer methods of chest examinations given by Dr. Bray of Raybrook Sanatorium and Dr. Kolb of Holtsville Sanitorium. Thirty-eight physicians sent patients to these clinics; 21 patients were X-rayed and by this means 5 were definitely diagnosed as being tuberculous. Messrs. Sampson and Autenreith of Trudeau Sanitorium had charge of making of the stereoscopic plates.

In order to stimulate interest in child welfare and other health work, the Westchester County Chapter of the American Red Cross has equipped a model child welfare station in the interior of an auto truck and has sent this exhibit into a large number of the towns in Westchester County. The local Health Departments, Red Cross Auxiliaries and Visiting Nurse Associations coöperate in making arrangements for the exhibit in their various localities and when the exhibit arrives in a community it is placed under the direction of the local public health nurse, and the state and the county health nurses attached to the exhibit act as her assistants. In this way great interest is stimulated in the various localities. Meetings are held in the evening at which health films are shown. The health officer of the community is speaker at these meetings and other professional health workers give five minute talks.

Little Mothers' League Clubs have been organized in nearly every town visited.

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North Carolina.—Millard Knowlton, M. D., who has been engaged in health work in Montana, has been appointed in charge of the V. D. work for the State Health Department.

Dr. F. M. Register, who has been health officer of Northampton County for two years, has resigned, to accept the position as chief of bureau of epidemiology with the State Board of Health.

Mr. H. B. Larner, of Cambridge, Mass., has been appointed health officer of Goldsboro.

In promoting public health through the regular advertising columns of newspapers North Carolina again sets a pace for the rest of the country in public health work. The idea was first utilized by Dr. J. S. Mitchener, county physician of Chowan County, in connection with the anti-typhoid vaccination campaign carried on there some weeks ago. Through the coöperation of business firms considerable space was used to advertise the various dispensary points in the county. Following this upon a larger scale Dr. L. J. Smith, whole-time health officer of Wilson County, recently used three issues of a local daily in forcibly bringing before the people of his county the importance of health work, and particularly the work against typhoid fever which is the most easily preventable of all preventable diseases. About 60 per cent of the advertising space in each of these issues was devoted to a message on health, the space being donated by the regular advertisers.

Venereal diseases with a total of 779 reported cases in June head the list of contagious diseases for that month, displacing whooping cough with 614 reported cases and measles with 499 reports which from time immemorial have headed the list. There were 432 cases of typhoid reported in June and more to be expected in July and August, when the fly gets in its deadly work.

The State Board of Health has taken steps towards an active coöperation with the American Red Cross with view of serving greatly increased public health nursing facilities in the state.

Both physicians and druggists are in general showing a keen interest in the efforts being put forth by the division of venereal diseases to secure complete reporting and are coöperating in fine spirit. Some physicians, however, are not complying, as indicated by the fact that 41 counties failed to submit any reports for June.

The State Board of Health has turned the pitiless light of publicity on the various resort hotels in the state that permit insanitary conditions. Publicity is far more effective than fines in securing reforms that prevent hotels from falling below the standard established as safe for health of the patrons.

An average of 75 children a day examined and treated in a single week, is the record of the dentists conducting free dental clinics in eight counties under the direction of the State Board of Health. Nearly a thousand treatments were given during the week, which establishes a new record for efficiency in this line of work.

About the first of July the eighth clinic for the treatment of venereal diseases in North Carolina was established at Clinton the county seat of Sampson County. Unlike the other seven clinics which have been located in the larger cities of the state the one at Clinton was established with view of extending the work to rural communities. If the experiment is successful steps will be taken to establish

others in the smaller towns. The work at Clinton will be done by D. E. T. Hollingsworth, whole-time health officer for the county, in coöperation with the bureau of the State Board of Health.

The nine counties coöperating with the State Board of Health through the establishment of county health departments with whole-time officers in charge come forward with the best report for the past month yet achieved in this work. A total of 14,502 people were vaccinated in the campaign against typhoid fever, and in the same period a total of 969 sanitary closets were built, these being largely in the rural sections of the counties. These two items are merely the high spots in the work accomplished.

The educational work along health lines in these counties are summed in the following statistics: 113 public meetings held; attendance upon these meetings, 11,485; letters sent out, 2,857; newspaper articles on public health matters published, 157.

"The Child of the Pre-School Age" a pamphlet issued by the Bureau of Infant Hygiene clearly points out the damage of neglecting the small child that can apparently take care of itself. The child of four is commonly superseded in the nursery by another baby who occupies the time and attention of its mother and so is left to its own devices. It falls into bad habits of eating and resting and diseased conditions of the adenoids and tonsils may develop unnoticed. The little pamphlet warns the parent of the damages of this period. (*M. T.*)

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Tennessee.—The division of venereal diseases of the State Board of Health was opened August 1, 1919, with a representative of the Public Health Service as medical officer in charge. During the month considerable educational work was done through the newspapers of the state and lectures, and informal gatherings have been addressed in the five principle cities. Clinics are being organized in these cities and an intensive campaign is being inaugurated. Report forms for the reporting system are now in the hands of the physicians of this state and the indications are that the Tennessee physicians are coöperating fully. Detention homes have been provided in two of the principal cities and law enforcement as well as medical phases are being rapidly worked out.

✻

Texas.—H. C. Hall, M. D., resigned in August as director of the bureau of venereal diseases of the State Board of Health. Dr. Oscar Davis, former assistant state health officer, has been appointed to the vacant position.

Dr. M. E. Parker, registrar of vital statistics, and secretary of the State Board of Health, tendered his resignation on August 18, and entered the service of the U. S. Public Health Service as quarantine officer for the port of Laredo, Texas.

✻

Wisconsin.—The outbreak of anterior poliomyelitis in Milwaukee, County, Wis., starting about the first of July, reached a total of 67 cases and seven deaths up to the middle of August, most of the cases being in the city of Milwaukee. On the last named date the total cases in the state were 95, with 15 deaths. The Milwaukee epidemic was then noticeably on the decline, the city's cases being reduced to 37. The other cases were well scattered throughout the state.

Green Bay, Wis., has established a health center, where will be combined all organized activities for promotion of health, sanitation and hygiene in the city and county. Dr. F. J. Gosin, formerly in military service, has been made the city's first full-time health officer and will be city physician as well. Establishment of a municipal laboratory is in the program of the new health department. A venereal disease clinic is already in operation, and during July more than 80 cases were treated. Dr. E. S. McNevins has been appointed to have charge of the clinic. Mrs. Ada O'Shaughnessy, city nurse of De Pere, Wis., has joined the health center staff.

Despite the high influenza mortality last year, Wisconsin's death rate during the second quarter of 1919 was lower than the average for the eleven-year period, standing at 11.1. Decline in nearly all other communicable diseases is held responsible for the lower rate.

Dr. Gustav L. Windesheim, full-time health commissioner of Kenosha, Wis., has been appointed by Governor Philipp as a member of the Wisconsin State Board of Health, succeeding Dr. J. M. Furstman, formerly of La Crosse.

Rock County, Wis., has purchased a large tract of farm land near Janesville as the site for a county tuberculosis sanatorium.

Madison, Wis., will establish a venereal disease clinic, to be supported by the city, state and federal government coöperatively.

Stoughton, Wis., will establish a public health clinic. Miss R. Claire White, of Madison, is to be public health instructor for Stoughton.

Miss Genevieve Russell, R. N., has been appointed public health nurse for Laona township, Forest County, Wis., the first township nurse of which the state has any record.

A new hospital is to be opened at Superior, Wis., by the sisters of St. Joseph's order.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh and P. M. Holmes.

Use of Army Masks in Industry.—A very complete discussion of the use of army gas masks in industry is given by Majors Fieldner and Fogler in this article which is also illustrated. The features of the mouthpiece, the eyepiece made of triplex glass, the canister containing special absorbent mediums for various kinds of gases, the superiority of the Tissot type mask, the length of time in minutes the standard army canister will protect against gases, 29 different gases to which workers are exposed in many different industries,—all of these are discussed with unusual clearness. Most gases are caught in a mixture of charcoal and soda-lime. There are some notable exceptions however. The organic substances like gasoline, benzol, carbon bisulphide, carbon tetrachloride, chlorpicerin, thiophosgene, ethyl chloride, anilin vapor and similar compounds require an all-charcoal canister. An all-soda-lime canister is recommended for hydrocyanic acid, hydrogen chloride, hydrogen sulphide, sulphur dioxide, carbon dioxide and other acid gases. The mixture canister is best for phosgene and chlorine gases. Ammonia fumes require a special chemical absorbent such as kupromite, which was developed at the American University Experiment Station. Satisfactory masks for carbon monoxide have unfortunately not been produced. One very important reason is that in such atmospheres there is often not sufficient oxygen to support life. Hence in the long list of industries in which men are likely to be "gassed," the mask has no advantages. An oxygen breathing apparatus will always be necessary. Very finely divided particles such as tobacco smoke or sulphur trioxide smoke are not completely removed by the standard army canister, but these were successfully used in some processes against sulphur dioxide and arsenical dust at the Anaconda Copper Mining Company at Butte, Mont.; also in connection with fumigating fruit trees and warehouses with hydrocyanic acid gas. Possibly the largest commercial use is in connection with the manufacture of chlorine and where chlorine is used or produced in various processes. Respiratory apparatus is of three classes: "pig snout" type for protection against solid and liquid particles, gas masks, and oxygen or air breathing apparatus. An efficient dust protector with low breathing resistance can be made by attaching a large paper filter to a Tissot face mask. Gas and dust protection can be combined in the same mask. "The selection of the proper kind of protective appliance for irrespirable atmospheres should never be made without the advice of an expert, who has investigated the conditions under which the appliance is to be used."—*A. C. Fieldner and B. B. Fogler, Journal of Industrial Hygiene*, June, 1919, pp. 69–75.

✻

Lead Poisoning—A Brief.—This one-page article is, nevertheless, very comprehensive. It discusses the prevalence, the mode of entrance into the body, symptoms, diagnosis, and treatment of lead poisoning. Severe intoxications often show basophilic degeneration of the red blood corpuscles and increased blood pressure. The writer implies that the less severe forms may not. The term "lead absorption" should be abolished. It is misleading. It has no more standing than would the term "alcoholic absorption." It is unfortunately being used as a blind to cover up real lead poisoning. Lead poisoning exists not because there is lead in the system but because it is not being eliminated fast enough, and there are symptoms of intoxication resulting. Treatment is symptomatic. Stop the exposure. Morphine may be given to relieve colic, and enemas and cathartics to relieve constipation. Potassium iodid has several uses. The electrolytic bath has been quite conclusively proved incapable of removing lead from human organs and tissues, but its psychical value cannot be doubted.—R. P. Albaugh, M. D., *Modern Medicine*, June, 1919, p. 137.

✻

Curative Power of Work.—Occupational therapy in civilian hospitals, the establishment of work shops in the same, work as a curative agent, and the use of such service in vocational placement are discussed. Cases who imagine they are sick, true heart disease cases, and various medical, surgical, and maternity cases have great possibilities as has been demonstrated.—G. C. Robinson, *Modern Medicine*, June, 1919, pp. 159–162.

✻

Work as a Therapeutic Agent.—This is discussed by Hawes in his *Collective Abstract on Tuberculosis for the Year 1918*. In the past, tuberculosis patients have been placed in the fresh air and reclining chairs and converted from the self-respecting consumptive working person to a fairly healthy loafer. At the Municipal Sanitorium at Otisville, New York, each patient is expected to do some useful work, apparently with excellent results. After the

sanitorium treatment should come the farm colony, after which the patient returns to his home.—John B. Hawes, II (Boston), *Modern Medicine*, June, 1919, pp. 175–181.

✻

Employers Must Have Plant Hospitals.—Massachusetts has been busy of late putting into effect the provisions of an amendment of the state labor laws enacted in 1918 requiring every employer employing over 100 persons to provide facilities for the treatment of persons injured or taken ill on the premises, and also suitable and sanitary facilities for heating or warming food to be consumed by employee. The minimum requirements adopted by the State Board of Labor and Industry for plant hospitals are described in detail.—*Hospital Management*, July, 1919, Chicago, p. 56.

✻

Principles and Practice of Safety.—A 72-page book for technical schools and universities for teaching the subjects indicated has been prepared covering safeguards and safe practices in school shops, with a syllabus of special lectures, and other features touching upon the industrial relations of the subject.—*National Safety Council*, Chicago.

✻

Hard Lives of Food Handlers.—A study covering 1,220 employees, 779 of whom were women working in dining-rooms, kitchens, pantries, and soda fountains was made in Cincinnati. The hours of work vary from six to nine daily. Violations of the nine-hour day and six-day week were frequent. A definite time for meals was reported only in 26 places of the 71 employing women in any capacity. In the remaining 45, employees eat when they can, usually standing, as few places provide chairs and tables for kitchen help.—Consumers' League of Cincinnati, *Bulletin No. 8*, June, 1919.

✻

Ohio Passes Advanced Laws.—In addition to the Hughes' Act creating 102 special health districts with full-time officials in the state, with many possibilities for the advancement of industrial hygiene, laws were also enacted extending further protection to minors; to females in certain occupations; requiring wash rooms at coal mines; protecting motormen and conductors against dust, wind, storm, and low temperatures; restricting the use of salamanders or similar burners in enclosures; and greatly improving health conditions in dry cleaning and dyeing establishments, the latter establishing fire protection. Another law which gives the state commissioner of health authority to define and classify hospitals and dispensaries, to require their registration, and annual reporting to the State Department of Health on specified forms.

Du Pont Medical Service.—Not many have realized the extent of the medical service of this organization during the war period. Beginning with the summer of 1914, on the outbreak of the war in Europe, it became necessary to increase the number of factories and to extend the older ones. The number of employees increased to about 150,000, and as many of them were construction laborers hurriedly concentrated in isolated and unprepared territory, the sanitary problem at once assumed large proportions. The medical director, Dr. W. G. Hudson, an old New York City health department man, soon organized an efficient sanitary service along well established modern lines; and this has been so effective that not a single outbreak of contagious disease has occurred to interfere with the production of munitions. This, of course, excepts the influenza epidemic, of which the plant communities had their share. But even here its approach was foreseen, and the organized preparation for handling it resulted in better medical service to those who became afflicted than the limited supply of physicians in surrounding communities permitted. On November 11, 1918, there were about a dozen hospitals, at the different establishments, and a total personnel of physicians and surgeons of more than 130.

✻

Muscular Tonus in Relation to Fatigue.—In a preliminary report the authors state that they found that in subjects doing relatively strenuous work during the day, or where long hours were spent in work, there was usually a decrease in the tonus in the evening as compared with the morning condition. This was more pronounced when the subject was losing rest (sleep). Tonus was better on days following a good night's sleep. Evidence was thus obtained of cumulative fatigue effects. Strenuous work of short duration was usually followed by an immediate decrease in tonus. In subjects doing relatively little work with plenty of sleep, the evening tonus was frequently greater than that observed in the morning.—A. H. Ryan, Sarah Jordan, A. B. Yates, *Public Health Reports*, July 25, 1919, pp. 1622–23.

✻

Disability as a Cause of Unemployment.—The percentages unemployed on account of disability (sickness, accident, and old age) were fairly constant from quarter to quarter. The highest percentage reported as unemployed because of disability, on record during the period, was 1.9 and the lowest was 0.7. The more usual percentage was 1.2, and the mean percentage for the entire period was 1.3.—*Massachusetts Bureau of Statistics, Labor Bulletin No. 126*, p. 30.

Rhythm in Industry.—The median speed of a series of operations was chosen as the typical speed. From this the average deviation by the worker was obtained, and this divided by the median gave the percentage deviation, or the coefficient of dispersion. The smaller this coefficient, the more rhythmical the operation or operator. In the experienced worker on a hand screw machine, the coefficient was as low as 2.74 per cent. In the inexperienced worker it was as high as 8.34 per cent. In the foot-press type of operation the coefficient was high, indicating less rhythm. Neither fatigue nor distraction seemed to interfere with the rhythm. There is, however, an optimum speed for rhythm. In summary, rhythm (1) relieves attention and thereby fatigue, (2) relieves fatigue by making metabolism more uniform, (3) it may mask fatigue in which case the output curve may be maintained in spite of fatigue, and (4) it may increase or decrease accident hazard, according to the case.—A. H. Ryan and P. S. Florence, *Public Health Reports*, July 25, 1919, pp. 1621–22.

✻

Industrial Democracy.—The term means representation of organized interests. All employees' organizations are not examples of democracy. Such organizations are of three types: (1) Welfare or shop committees which are merely advisory organizations, (2) employers' unions in which collective bargaining is recognized,—the principle being confined to one company and the management not excluded from the meetings, and (3) trade unions, the ordinary labor unions. Shop committees are popular just now and are analogous to patent medicine, since they are applied because of their supposed general healing powers. There are two kinds of labor relations: (1) The personal relations and (2) the economic collective relations. The first means handling the human element that goes into production with the same understanding of the feelings, instincts, prejudices, and characteristics of the workers as the management has of its materials and mechanical forces. Personal relations cover hiring, selection, placement, training, promotion, treatment by foremen, health, safety, recreation, lunches, rest periods, etc. These questions are not essentially controversial in nature; they do not involve conflicting interests and they have to be settled by good management and scientific experts rather than by democratic decisions of majorities. The second group, the economic relations, present controversial issues and cannot be settled by any technical expert. The author insists upon pointing out that merely welfare committees attached to a management is not democracy, and when an employer thinks or pretends that such is the case, he is preparing trouble for himself.—W. M. Leiserson, *Working Conditions Service, U. S. Department of Labor*, May 23, 1919, *pamphlet*, 15 pp.

✻

Rhode Island Limits Health Hazards in Textile Mills.—A new statute forbids the use of suction shuttles in textile mills, provides a safer supply of drinking water, prohibits common drinking cups and common towels. Virginia forbids common drinking cups in factories and stores and public places. Massachusetts requires employers to furnish suitable and sanitary facilities for warming food if the employees desire same.—*Labor Legislation of 1918, Bulletin No. 257, U. S. B. of L. S.*, June, 1919, p. 14.

✻

Cost of Clean Clothes in Terms of Health.—Investigations were made in forty-two steam laundries in New York City, with 3,024 employees of whom 715 were men and 2,309 were women. The types of laundries, processes of work, conditions of work in each process, hours, wages, number of employees in each process with age, nationality, and family status, home and living conditions, etc., were studied. Tuberculosis and nose and throat diseases were found much more commonly in those who handled soiled linen (sorters and markers) than in the other group. There was also some evidence of the contraction of trachoma and diphtheria. Diseases of the lungs were prominent in men employed in the wash rooms. Foot treadle work and long standing caused menstrual troubles in 37 per cent of the women,—the same group showing a high percentage of flat-foot. Thirty per cent of the markers and sorters had flat-foot and 28.5 per cent of the ironers. The flat-foot rate for all workers was 17½ per cent; 26.7 per cent had varicose veins; and 20 per cent were anæmic. The custom of long hours for three or four days a week followed by a let-up undoubtedly contributes to the diseases and the large labor turnover. The cause is long hours, which in many laundries is simply mismanagement on the part of the employer. A large proportion earn less than a living wage. The bulletin is illustrated.—Louis I. Harris and Nelle Swartz, *Department of Health and Consumers League*, New York City, 96 pp.

✻

Occupational Diseases Reported in Connecticut.—One locality, Bridgeport, and one disease, fulminate intoxication, constitutes the substance of the report. There were 216 fulminate cases reported for the biennium 1917–1919 and 39 forms of other occupational diseases.—*Twenty-eighth Report, Connecticut Bureau of Labor Statistics*, Hartford.

Hours, Output, and Health of Wool Workers.—Limited evidence was to the effect that the adoption of a 54-hour schedule resulted in unimportant effects on the health of workers. Anthrax has seldom been traced to the industry in this country although in Great Britain it is of increasing occurrence. The accident hazard is fairly high. The carbonizing and dyeing processes present special health hazards and appear to require consideration in the hours of work. There is a distinctly high death rate from tuberculosis and pneumonia, which may be related to the high temperatures and humidity characteristic of some processes in the industry. In spite of outside factors it is so high as to indicate that conditions within the industry are a contributing factor.—National Industrial Conference Board (15 Beacon Street, Boston), *Research Report No. 12.*

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British Comment on Compulsory Health Insurance.—After an experience dating from 1912, no group affected by the workmen's health insurance would think for a moment of going back to the old conditions. Perhaps the greatest immediate service of health insurance in England was its disclosure of hundreds of thousands of previously unreported and, therefore, unattended cases of illness. Disclosure of the large amount of occupational disease and tuberculosis, which hitherto had been receiving the most inadequate recognition, has called attention to both working and housing conditions. Physicians, who originally opposed the legislation, later learned its advantages not only as a means of giving them greater opportunities to relieve physical distress but also as a method of certain payment for services rendered. Their incomes were in the majority of cases increased. Any system of social health insurance to be economically conducted must be universal, *i. e.*, compulsory in form.—Margaret Bondfield, *American Labor Legislation Review*, Volume IX, No. 1, June, 1919, pp. 202–203.

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Occupational Diseases in Pennsylvania.—A great deal of lead work is done. The notoriously dangerous lead trades have been made much safer. The less dangerous ones have hardly changed at all. Carbon monoxide is probably the closest rival of lead, and poisoning from it is yearly on the increase. Brass poisoning, as often described, is merely lead poisoning but some workers suffer from the sublimed zinc oxide in making brass. Mercury in felt hat making is a fairly large industry in the state. Opportunities for arsenic poisoning are present in the ores used in some industries. Various industrial gases of poisonous character are frequent. Coal tar products, including explosives such as T. N. T. are, or were, made on an extensive scale. While industrial poisons constitute a fairly full list, they are by no means so important in producing disease as are certain physical agents such as strain, dust, heat, and injurious light. Many things in the textile industry bring about a high rate of tuberculosis. Coal miners suffer particularly from lung diseases other than tuberculosis. (A table is given comparing the mortality of two coal mining cities—Scranton and Wilkes-Barre—with the remainder of the state.) In three years there were reported 49 cases of anthrax, 8 of them women. There is no compensation for occupational diseases in Pennsylvania. Industrial poisoning is typically chronic, exceptionally acute, yet there is far more doubt in the chronic than in the acute case. There are probably twenty or more cases of the chronic for every case which is acute.—Alice Hamilton *Labor Review, U. S. B. of L. S.*, Vol. IX, No. 1, July, 1919, pp. 170–180.

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Occupational Diseases Compensable in Connecticut and Wisconsin.—The Connecticut law includes all industrial diseases which are due to "causes peculiar to the occupation and which are not of a contagious, communicable, or mental nature." The Wisconsin law, which is patterned after the British act, enumerates twenty specific diseases,—poisoning from lead, mercury, phosphorus, and arsenic; a number of diseases due to poisonous dusts, gases, and fumes; also anthrax, hook worm disease, nystagmus, glanders, compressed air illness, and several miners' diseases.—*Labor Review, U. S. B. of L. S.*, Vol. IX, No. 1, July, 1919, page 186.

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Pennsylvania Health Insurance Commission.—The commission's work was limited because of its appropriation of only $5,000. There are constantly more than 385,000 employees suffering from illness Pennsylvania stands highest of any state in the percentage of men rejected for physical reasons in the draft of April, 1917. Of her young men between 21 and 31 years of age, 46.67 per cent were rejected,—the average for the country as a whole was 29.11 per cent. The annual wage loss to employees on account of sickness, estimated at $2 per day, is at least $33,000,000. Investigation showed that as the family income increases the amount spent on medical care increases. Large numbers of men and women actually sick are at work every day. Four large establishments state that it costs from $30 to $50 to hire and train new workmen. A synopsis of other factors of the report is given.—*Labor Review, U. S. B. of L. S.*, Vol. IX, No. 1, July, 1919, pp. 220–226.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Analysis of Human Milk.—Mixed samples of milk taken before and after nursing, or the entire amount of one breast, must be taken to obtain a characteristic sample of milk for analysis. It should be drawn at 9 or 10 a. m. Accurate methods of chemical analysis must be used. Clinical laboratory tests cannot be depended on because of their inaccuracies.—Fritz B. Talbot, *Jour. A. M. A.*, 73, 662 (1919).

✻

Effect of Agglutinins.—The glycolytic action of the living B. coli may be markedly weakened by agglutinin, and the agglutinin is able so to change the cell membrane of the bacteria that their endoenzyme can permeate it. Neither agglutinin nor hemagglutinin alters the permeability of bacteria and red blood corpuscles for glucose. The resistance of the blood corpuscles to hypotonic solutions is slightly decreased by agglutinin or hemolysin.—B. Fryimoto, *Jour. Immunology*, 4, 67 (1919).

✻

Hemolytic Complement and Antibodies.—A method for the collection of plasma is described which has yielded uniform success and simplified this difficult technical problem. This technic involves the use of dried sodium oxalate after a method devised by Meeker, and a paraffined tube. Sodium oxalate in the proportion of 0.001 gm. per cubic centimeter of blood prevents coagulation and does not exert any injurious influence on hemolytic complement or antibodies; in amounts of 0.004 gm. per cubic centimeter of blood sodium oxalate may prove to be anticomplementary. The oxalated plasmas of normal and syphilitic persons and normal and immunized rabbits contains hemolytic complement in the same or somewhat greater amounts than the corresponding serums. The oxalated plasmas of syphilitic persons contain the same amounts of Wassermann antibody as the corresponding serums. The oxalated plasmas of persons and rabbits contain the same or occasionally slightly greater amounts of such natural antibodies as antisheep hemolysin and typhoid agglutinin as the corresponding serums. The oxalated plasmas of normal and immunized rabbits contain as much specific and nonspecific complement fixing substances and specific bacterial and hemagglutinins as the corresponding serums. The general conclusion reached by Watanabe is that hemolytic complement and natural and immune antibodies exist free and performed in the circulating plasma of the blood.—S. Watanabe, *Jour. Immunology*, 4, 77 (1919).

✻

Production of Antihuman Hemolysin.—Vedder has found that the hemolysin is either a globulin or is precipitated with the globulins; more probably the former hypothesis is correct for the total hemolytic power of a serum is contained in the globulins whether precipitated out by salting or by dialysis. In this case, therefore, an antigen consisting of a specific albumin produces an antibody consisting of a specific globulin.—E. B. Vedder, *Jour. Immunology*, 4, 141 (1919).

✻

Frozen Complement in the Wassermann Reaction.—Frozen guinea-pig complement one week old, whether composed of the mixed serums of three guinea pigs or of the serum from one guinea pig usually gave a little stronger positive result with the Wassermann reaction than did the same complement while fresh. At the age of two weeks the frozen complement gave results that were nearly identical with the results obtained with the fresh complements. After two weeks the frozen complement gradually lost strength which seemed to be more rapid in mild weather than in very cold weather. —E. H. Ruediger, *Jour. Inf. Dis.*, 25, 269 (1919).

✻

Different Races of Pneumococci.—The agglutinating power of bacteria is the criterion of the race; the power of fixation of complement, on the other hand, is the criterion for the species. There may be other antigens, but those responsible for agglutination and fixation predominate. They are not peculiar to any one bacterium: Of eighty-three specimens of streptococcus tested, eighty-two agglutinated the pneumococcus I and II, and one the pneumococcus I; the cholera vibrio agglutinated both strains, while the pneumococcus II was agglutinated by meningococci, staphylococci, typhoid and dysentery bacilli, and slight agglutination for pneumococcus III was evident with some streptococci. They found in negroes a pneumococcus IV, "such as the Americans list as purely negative," which in 8 per cent showed average agglutination, but in 40 per cent it displayed extremely pronounced agglutinating powers, hyperagglutinability.—M. Nicolle and E. Debains, *Bull. Acad. Med. Paris*, 81, 843 (1919).

Supplement to the American Journal of Public Health,
Vol. IX, No. 10, October, 1919.

PRELIMINARY PROGRAMS

of the

FORTY-SEVENTH ANNUAL MEETING

of the

AMERICAN PUBLIC HEALTH ASSOCIATION

New Orleans, La., October 27th to 30th, 1919

Headquarters: Hotel Grunewald

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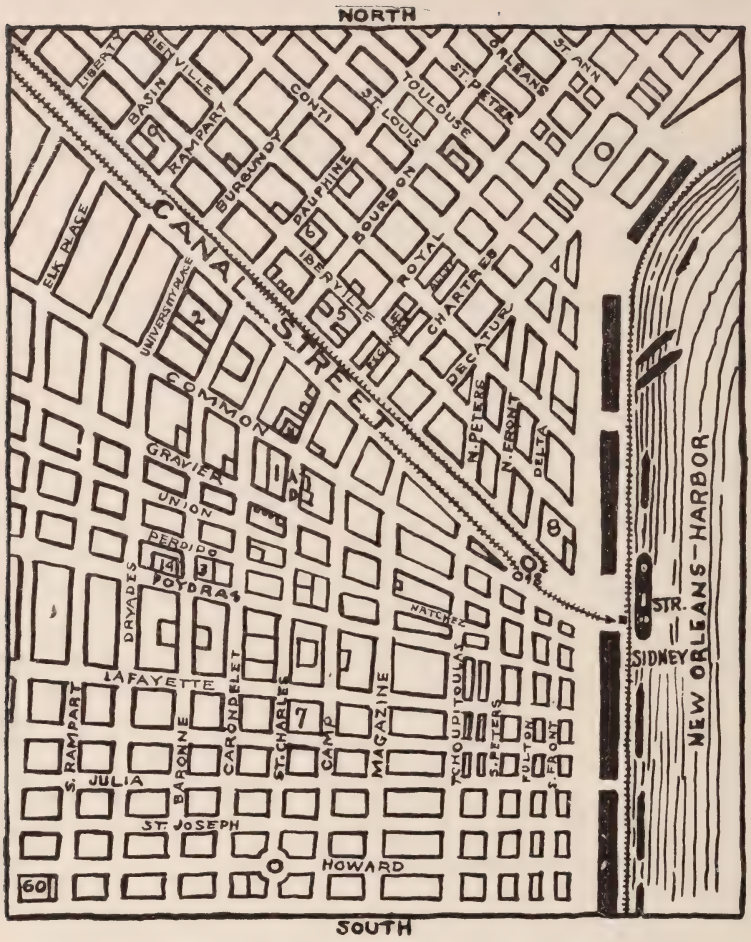
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AMERICAN PUBLIC HEALTH ASSOCIATION
169 Massachusetts Ave., Boston, Mass.



Map of Business Section of New Orleans

HOTELS AND RAILWAY STATIONS

1. Hotel St. Charles.
2. Hotel Grunewald—Association Headquarters.
3. Hotel De Soto.
4. Hotel Monteleone.
5. Cosmopolitan Hotel.
6. Planters' Hotel.
7. Lafayette Hotel.
8. L. and N. R. R.
9. Terminal Station.
60. Union Station.

RAILROAD RATES.

We are informed by the Railroad Administration that winter rates to New Orleans will be in effect after Oct. 1. For further information, consult your local railroad agent. The discount, we are informed, will be approximately 10%.

NEW ORLEANS HOTELS.

	Capacity in Rooms.	With Private Bath.		Without Bath.
GRUNEWALD, Association Headquarters,	600	single	$3.00 up	$1.50 up
University Place, near Canal St.,		double	4.00 up	2.00 up
ST. CHARLES,	800	single	2.50 up	2.00 up
St. Charles St. and Common,		double	4.00 up	3.00 up
HOTEL DE SOTO,	150	single	none	none
Baronne St. and Poydras,		double	6.00	4.00
PLANTERS,	30	single	2.50	1.50
Dauphin St. and Iberville,		double	4.00	2.00
LAFAYETTE,	40	single	2.50	1.50
St. Charles St. and Lafayette,		double	3.00	2.50
MONTELEONE,	150	single	3.00 up	2.00 up
Royal St. and Iberville,		double	4.00 up	3.00 up
COSMOPOLITAN,	100	single	2.00 up	1.50 up
Royal St. and Iberville,		double	3.00 up	2.50 up

All hotels are equipped with hall baths.

TAKE YOUR HEALTH PROBLEMS TO NEW ORLEANS OCTOBER 27–30.

One of the advantages of a meeting of this type is to rub elbows with other public health men and women, thereby gaining new ideas for the daily work and obtaining the advice of others upon questions which are in doubt.

Special plans are being made to help those who come to the meetings to receive advice concerning the knotty problems of their work. Committees are being organized to answer questions concerning such subjects as malaria, influenza, milk supply, water supply, tuberculosis, public health legislation, etc.

While opportunity will be given to hand in questions at the Information Desk at New Orleans, it will help the committees if questions are sent in advance. Address Question Box Committee, A. P. H. A., 169 Massachusetts Avenue, Boston, Mass.

EXHIBITS.

There will be both scientific and commercial exhibits relative to public health matters, which will be very instructive. Those wishing space for a scientific exhibit, should address Dr. W. H. Seemann, State Department of Health, New Orleans, La.

Those wishing to obtain space for commercial exhibits should address the Secretary of the American Public Health Association, 169 Massachusetts Ave., Boston, Mass.

ENTERTAINMENT PROGRAM.

There will be a boat ride for members and guests of the Convention on the Mississippi River. This is very interesting, as it shows the magnificent harbor, docks and shipping, navy yards and large manufacturing plants facing the river.

This trip will probably be arranged for Thursday afternoon, October 30.

For the ladies there will be trips also to the historical portions of the city, to be conducted by the members of the Louisiana Historical Society.

IF YOU CANNOT COME—

you will still be able to obtain a large measure of benefit accruing from these meetings by becoming a member of the Association. The important papers and discussions will be published in the AMERICAN JOURNAL OF PUBLIC HEALTH, appearing monthly.

Members also receive the A. P. H. A. News Letter and are entitled to the services of the Health Employment and Health Information Bureaus. Dues are $5.00 per year. For further information address Secretary of the American Public Health Association, 169 Massachusetts Ave., Boston, Mass.

Note.—The Board of Directors will meet on Sunday, Oct. 26, 7 p. m., at Hotel Grunewald, Room G.

PRELIMINARY

PROGRAMS OF THE FORTY-SEVENTH ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

New Orleans, La., October 27–30, 1919.

PROGRAM OF THE GENERAL SESSIONS.

President, Lee K. Frankel, Ph. D., *New York City.*
Vice-Presidents, J. W. S. McCullough, *Lieut.-Col.*, C. A. M. C., *Toronto, Ont.*
V. C. Vaughan, M. D., *Ann Arbor, Mich.*
John D. Robertson, M. D., *Chicago ,Ill.*
Treasurer, G. H. Sumner, M. D., *Des Moines, Ia.*
Secretary, A. W. Hedrich, *Boston, Mass.*

Note.—The order of the second, third, and fourth sessions is subject to change. In case of change, speakers will be notified by October 15.

First Session.

Monday, October 27, 7: 45 P. M.
Hotel Grunewald, Banquet Hall.

Invocation. Rev. John W. Shaw, *Archbishop, Catholic Diocese of Louisiana.*
Addresses of Welcome. Hon. R. G. Pleasant, *Governor of Louisiana*
Hon. Martin Behrman, *Mayor of New Orleans.*
Address. Lee K. Frankel, Ph. D., *President, American Public Health Association.*
Historical Development of Public Health Work in England. Sir Arthur Newsholme, K. C. B.
Reception to members and guests.

Second Session.

Tuesday, October 28, 7: 45 P. M.
Hotel Grunewald, Banquet Hall.
Symposium on Influenza.

Administrative Measures against Influenza. Allen W. Freeman, M. D., *State Commissioner of Health, Columbus, Ohio.*
Physical Examination Once a Year—the Cincinnati Red Cross Influenza Follow-up Campaign. W. H. Peters, M. D., *Health Officer, Cincinnati, Ohio.*
What Medical Examination of Influenza Patients Has Shown in Framingham, Massachusetts. D. B. Armstrong, M. D., *Executive Officer, Community Health Demonstration, Framingham, Mass.*

All papers are limited to 15 minutes; discussions to 5 minutes.

Reports of Subcommittees on Influenza:

Subcommittee on Preventive Methods.

Subcommittee on Bacteriology and Biological Products. W. H. PARK, M. D., *Chairman.*

The Report of the Subcommittee on Statistics of the Epidemic will be delivered in the Influenza Symposium of the Vital Statistics Section, Thursday morning, October 30.

Discussion of the Influenza Situation: Opened by W. C. WOODWARD, M. D., *Health Commissioner, Boston, Mass.*

THIRD SESSION.

Wednesday, October 29, 2: 00 P. M.
Hotel Grunewald, Banquet Hall.

A Supreme National Need: Co-ordination and Enlargement of Federal Health Activities. W. S. RANKIN, M. D., *Secretary, State Board of Health, Raleigh, N. C.*

DISCUSSION: Opened by S. J. CRUMBINE, M. D., *Topeka, Kans.*, and FREDERICK R. GREEN, M. D., *Chicago, Ill.*

Public Health Perspective. L. L. LUMSDEN, *Assistant Surgeon General, U. S. Public Health Service, Washington, D. C.*

Final Reports or Résumés on Influenza.

Report of Committee on State Health Societies. W. A. EVANS, M. D., *Chicago, Ill., Chairman.*

Report of Committee on Resolutions.

Other Association Business.

FOURTH SESSION.

Wednesday, October 29, 7: 45 P. M.
Hotel Grunewald, Banquet Hall.
Symposium on Malaria.

Cure of Infected Persons as a Factor in Malaria Control. C. C. BASS, M. D., *Professor of Experimental Medicine, Tulane Medical College, New Orleans, La.*

DISCUSSION: Opened by W. S. LEATHERS, M. D., *State Health Officer, Jackson, Miss.*

Drainage as an Anti-Malarial Measure. J. A. LE PRINCE, *Senior Sanitary Engineer, U. S. P. H. S., Memphis, Tenn.*

Mosquito Work of the Bureau of Entomology: Other Insects from the Health Point of View. CAPT. D. L. VAN DINE (late U. S. A.), *Expert, Bureau of Entomology, U. S. Department of Agriculture, Mound, La.*

DISCUSSION: Opened by L. O. HOWARD, *Chief of Bureau of Entomology, Washington, D. C.*

A Résumé of Methods, Costs, and Results in Malaria. H. R. CARTER, *Assistant Surgeon General, U. S. P. H. S., Baltimore, Md.*

DISCUSSION: Opened by J. A. FERRELL, M. D., *International Health Board, New York City.*

Installation of Incoming Officers.

AMERICAN ASSOCIATION OF MEDICAL MILK COMMISSIONS.

This Association will meet in New Orleans about the same time or shortly before the A. P. H. A. meetings. For further information address Dr. A. J. Bell, 559 Decatur St., Brooklyn, N. Y.

All papers are limited to 15 minutes; discussions to 5 minutes.

PROGRAM OF THE SECTION OF PUBLIC HEALTH ADMINISTRATION.

Address all communications concerning this program to Mr. C. H. Wells, State Health Department, Wilmington, Del.

Chairman, Mr. Chester H. Wells, *Wilmington, Del.*
Vice-Chairman, T. D. Tuttle, M. D., *Topeka, Kans.*
Secretary, Wm. F. Cogswell, M. D., *Helena, Mont.*

First Session.

Monday, October 27, 2:00 P. M.
Hotel Grunewald, Banquet Hall.
Rural Health Problems.

General Business.

Appointment of Nominating Committee.

Report of Committee on Rural Health Administration. G. F. Ruediger, M. D., *Reno, Nevada, Chairman.*

Symposium: The Privy as a Public Health Problem. L. L. Lumsden, *Assistant Surgeon General, U. S. Public Health Service, Washington, D. C.*

The Rôle of the Privy in the Control of Typhoid Fever. Clarence E. Smith, M. D., *Health Officer, Columbia, S. C.*

The Rôle of the Privy in the Control of Hookworm Disease. John A. Ferrell, M. D., *International Health Board, New York City.*

The Rôle of the Privy in the Control of Infant Mortality. E. C. Levy, M. D., *Director of Public Welfare, Richmond, Va.*

The Importance of Rural Education Work in the Control of the Privy Nuisance. W. F. Cogswell, M. D., *Secretary, State Department of Public Health, Helena, Mont.*

Practical Types of Sanitary Privies, with Exhibits. C. W. Stiles, M. D., *U. S. Public Health Service, Wilmington, N. C.*

Public Health Education in the South. Thorndike Saville, *University of North Carolina, Chapel Hill, N. C.*

Hookworm Infection in Florida. B. L. Arms, M. D., *Director, Bureau of Diagnostic Laboratories, State Board of Health, Jacksonville, Fla.*

Second Session.

Tuesday, October 28, 9:00 A. M.
Hotel Grunewald, Banquet Hall.
Communicable Disease Problems.

Report of Committee on Venereal Diseases. W. F. Snow, *Colonel, United States Army, Washington, D. C., Chairman.*

Report of Committee on Standard Regulations for the Control of Communicable Diseases. Haven Emerson, M. D., *Medical Adviser, Charity Organization Society, New York City, Chairman.*

Causes of Typhoid Fever in Massachusetts. Bernard W. Carey, M. D., *Director, Division of Communicable Diseases, State Department of Health, Boston, Mass.*

Discussion: Herman Bundesen, M. D., *Chicago Health Department, Chicago, Ill.*

The Health Officer's Care of Lepers. John A. Vogelson, *Chief, Bureau of Health, Philadelphia, Pa.*

The State, the Municipality and the Private Tuberculosis Association in the Control of Tuber-

Many members are present especially to hear YOUR paper, and the Section officers will appreciate it if you will present it at the scheduled time.

culosis. Donald B. Armstrong, M. D., *Executive Officer, Community Health Demonstration; National Tuberculosis Association, Framingham, Mass.*

Discussion: Frederick D. Hopkins, *Field Secretary, National Tuberculosis Association, New York City,* and Allan J. Hruby, M. D., *Medical Superintendent, Municipal Tuberculosis Sanitarium, Chicago, Ill.*

Preventive Medicine in War. Mazyck P. Ravenel, M. D., *University of Missouri, Columbia, Mo.*

Discussion: Charles J. Hastings, M. D., *Medical Officer of Health, Toronto, Can.*, and A. T. McCormack, M. D., *Secretary, State Board of Health, Louisville, Ky.*

The State Health Society: Its Purpose, Organization and Usefulness. W. A. Evans, M. D., *Health Department, Chicago Tribune, Chicago, Ill.*

Discussion: E. R. Kelley, M. D., *Commissioner of Health, State Department of Health, Boston, Mass.*, and H. E. Dearholt, M. D., *Wisconsin Anti-Tuberculosis Association, Milwaukee, Wis.*

Venereal Disease Control: Methods, Obstacles and Results. C. C. Pierce, *Assistant Surgeon General, U. S. Public Health Service, Washington, D. C.*

Discussion: Allen W. Freeman, M. D., *State Commissioner of Health, Columbus, Ohio,* Matthias Nicoll, Jr., M. D., *Deputy Commissioner of Health, Albany, N. Y.*, and John Dill Robertson, M. D., *Commissioner of Health, Chicago, Ill.*

Third Session.

Tuesday, October 28, 2:00 P. M.
Hotel Grunewald, Banquet Hall.
Public Health Administration.

Report of Committee on Uniform Accounting for Health Departments. Ernst C. Meyer, Ph. D., *Director of Surveys and Exhibits, International Health Board, New York City, Chairman.*

Report of Committee on Standardization of the Work of Public Health Officials. Lawrence Veiller, *National Housing Association, New York City, Chairman.*

Report of Committee on a National Program of Prenatal and Maternal Care. Haven Emerson, M. D., *Medical Adviser, Charity Organization Society, New York City, Chairman.*

Causes of Army Rejections and What the Health Officer Can Do to Remedy Conditions. Frank R. Keefer, *Colonel, Medical Officer of the Draft, Carlisle, Pa.*

Discussion: V. C. Vaughan, M. D., *University of Michigan, Ann Arbor, Mich.*, and W. C. Woodward, M. D., *Health Commissioner, Boston, Mass.*

What Should Be Done in the Control of Degenerative Diseases? F. S. Crum, Ph. D., *Assistant Statistician, Prudential Life Insurance Company, Newark, N. J.*

Discussion: M. M. Smith, M. D., *Managing Editor, Medical Insurance and Health Conservation, Dallas, Tex.*

Symposium: Public Health Administration.

Methods for the Defense of Health Appropriations. Ernst C. Meyer, Ph. D., *Director of Surveys and Exhibits, International Health Board, New York City.*

Discussion: Carl E. McCombs, M. D., *Bureau of Municipal Research, New York City,* and Charles J. Hastings, M. D., *Medical Officer of Health, Toronto, Can.*

A Standard Budget, The Health Officer's Necessity for Obtaining Appropriations. Haven Emerson, M. D., *Medical Adviser, Charity Organization Society, New York City.*

Discussion: Ernst C. Meyer, Ph. D., *Director of Surveys and Exhibits, International Health Board, New York City.*

Standardization of Public Health Reports. Lent D. Upson, *Detroit Bureau of Governmental Research, Detroit, Mich.*

All papers are limited to 15 minutes; discussions to 5 minutes.

Relative Functions of State and Local Health Departments. Carl E. McCombs, M. D. *Bureau of Municipal Research, New York City.*

Discussion: Paul B. Brooks, M. D., *State Department of Health, Albany, N. Y.*, and A. T. McCormack, M. D., *Secretary, State Board of Health, Louisville, Ky.*

How to Organize Your City for Public Health. James P. Kranz, *Executive Secretary, Tennessee Anti-Tuberculosis Association, Peabody College, Nashville, Tenn.*

Discussion: Elwood Street, *Director of Social Agencies, 913 Starks Building, Louisville, Ky.*, and Charles T. Nesbitt, M. D., *Health Officer, Akron, Ohio.*

Coördination of Public Health Activities. Frank S. Sampson, M. D., *Creston, Iowa.*

Discussion: Mayo Tolman, *New York City*, and Charles V. Chapin, M. D., *Health Officer, Providence, R. I.*

Fourth Session.

Wednesday, October 29, 9: 00 A. M.
Hotel Grunewald, Room F.
Joint Session with Laboratory and Food and Drugs Sections.

Occurrence of Typhoid Fever after the Use of Bacterins. George A. Soper, *Major, U. S. Army, Washington, D. C.*

Discussion: Haven Emerson, M. D., *Medical Adviser, Charity Organization Society, New York City.*

Organization of Control of Pasteurization. F. O. Tonney, M. D., *Chicago Health Department, Chicago, Ill.*

City Health Bulletins: Their Use and Misuse, and Necessity for Additional Mailing Privileges. Max J. Colton, *Health Officer, Cumberland, Md.*

Future of Food and Drug Control: Needed Developments. Carl L. Alsberg, M. D., *Chief, Bureau of Chemistry, Washington, D. C.*

Uses, Possibilities and Limitations of Bacteriology in Food Control. Edwin O. Jordan, *Professor of Bacteriology and Hygiene, University of Chicago, Chicago, Ill.*

Discussion: H. W. Redfield, Ph. D., *U. S. Department of Agriculture, Bureau of Chemistry, Washington, D. C.*

Studies in Food Poisoning: An Experimental Lunch with Canned Food Containing Bacteria. M. J. Rosenau, *Professor of Preventive Medicine, Harvard Medical School, Boston, Mass.*

Studies in the Clarification of Milk. Prof. Charles E. Marshall, *Department of Microbiology, Massachusetts Agricultural College, Amherst, Mass.*

The Test of a New Water Supply for the American Troops at Brest. Prof. Edward Bartow, *University of Illinois.*

Endemic Sprue in the Southern United States. Mark F. Boyd, M. D., *Laboratory of Bacteriology and Preventive Medicine, University of Texas.*

This meeting will close promptly at 11: 45 A. M. in order to allow time for the round table luncheon to come to order at 12 M.

Fifth Session.

Wednesday, October 29, 12: 00 Noon.
Hotel Grunewald, Banquet Hall.
Round Table Luncheon.
Appropriations.

How to Obtain Adequate Appropriations for Public Health Work. Henry F. Vaughan, D. P. H., *Health Officer, Detroit, Mich.*, and E. C. Levy, M. D., *Director of Public Welfare, Richmond, Va.*

What Can We Do to Bring About Reasonable Compensation for Health Officers?

Hermann Biggs, M. D., *Commissioner of Health, State Department of Health, 25 West 45th St., New York City.*

Many members are present especially to hear YOUR paper, and the Section officers will appreciate it if you will present it at the scheduled time.

ALLEN W. FREEMAN, M. D., *State Commissioner of Health, Columbus, Ohio.*
OSCAR DOWLING, M. D., *State Commissioner of Health, New Orleans, La.*
F. M. MEADER, M. D., *Director, Division of Communicable Diseases, State Department of Health, Albany, N. Y.*

Experiences of Health Officials in Obtaining Appropriations.

CHARLES SAVILLE, *Acting Secretary, Chamber of Commerce and Manufacturers' Association Dallas, Tex.*
W. H. KELLOGG, M. D., *Secretary, California State Board of Health, Sacramento, Cal.*
CHARLES J. HASTINGS, M. D., *Medical Officer of Health, Toronto, Can.*
MAX COLTON, *Health Officer, Cumberland, Md.*
CHARLES V. CRASTER, M. D., *Health Officer, Newark, N. J.*
J. M. FURSTMAN, M. D., *Health Director, Department of Health and Safety, Bloomington, Ill.*

SIXTH SESSION.

Thursday, October 30, 9: 00 A. M.
Hotel Grunewald, Banquet Hall.

(Joint Session. See program under Vital Statistics Section.)

PROGRAM OF THE LABORATORY SECTION.

Chairman, R. B. FITZ-RANDOLPH, M. D., *Trenton, N. J.*
Vice-Chairman, A. B. WADSWORTH, M. D., *Albany, N. Y.*
Secretary, W. G. BISSELL, M. D., *Buffalo, N. Y.*

(NOTE: Papers are limited in time to 15 minutes; discussions to 5 minutes. No changes in the program will be made, but additional papers will be listed for presentation at the conclusion of each session if time permits.)

FIRST SESSION.

Monday, October 27, 2:00 P. M.
Hotel Grunewald, Room F.

General Business.
Appointment of Committees.
Address of the Chairman.

Reports of Committees.

Standard Methods for the Bacterial Examination of Milk. W. H. PARK, M. D., *Director of Research Laboratories, New York City Department of Health.*

Committee on Influenza. W. H. PARK, M. D., *Director of Research Laboratories, New York City Department of Health.*

Standard Methods for the Bacteriological Examination of Shellfish. PAYN B. PARSONS, M. D., *Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.*

Standard Methods for the Examination of Air. PROF. C.-E. A. WINSLOW, *The School of Medicine, Yale University, New Haven, Conn.*

Standard Methods for the Bacterial Examination of Water and Sewage. PROF. FREDERIC P. GORHAM, *Brown University, Providence, R. I.*

Standard Methods for the Chemical Examination of Water and Sewage. EDWARD BARTOW, *Chief, State Water Survey Division, State of Illinois, Springfield, Ill.*

Standard Methods for the Preparation and Standardization of Anti-Meningococcus Serum. CHARLES KRUMWIEDE, M. D., *Research Laboratories, New York City Department of Health.*

All papers are limited to 15 minutes; discussions to 5 minutes.

Standard Methods for Preparing Tuberculin and Mallein. A. Parker Hitchens, M. D.
Standard Methods for Preparing Diphtheria Antitoxin. P. G. Heinemann, M. D.
Standard Methods for Testing Disinfectants. Prof. Earle B. Phelps.
Standard Methods for Analysis of Miscellaneous Food Products. Lester A. Round, P. L. D., *Pathologist, Rhode Island State Board of Health, Providence, R. I.*
Some Observations on the Presence of Trichomonas Hominis in the Intestinal Tract. W. D. Stovall, M. D., *Director, Wisconsin State Laboratory, Madison, Wis.*
An Apparatus for Determining the Specific Gravities of Minute Quantities of Urine. William G. Exton, *The Prudential Insurance Company, Newark, N. J.*
Can Arsphenamine Be Kept in Permanent Solution? Otto Lowy, M. D.

Second Session.

Tuesday, October 28, 2: 00 P. M.
Hotel Grunewald, Room F.

A Comparison of Stains for Diphtheria Bacilli. Henry Albert, M. D., *Department of Pathology and Bacteriology, State University of Iowa.*
The Preparation of Old Tuberculin. Benjamin White, M. D.
Some of the Factors Influencing the Potency of Biological Products. John F. Anderson, M. D., *New Brunswick, N. J.*
The Value of Brilliant Green in Eliminating Errors Due to the Anaerobes in the Presumptive Test for B. Coli. Theodore C. Muer, and Robert L. Harris, *Bacteriologists, Mt. Prospect Laboratory, Brooklyn, N. Y.*
The Association of B. Coli as an Index of Typhoid Pollution of Water Supplies. C. C. Young, *Ann Arbor, Mich.*
Some Observations on Suspensions of Bacteria in Oil. A. Parker Hitchens, M. D.
The Potency of a Polyvalent Antimeningococcus Serum Produced with Four Representative Strains as Compared with a Similar Serum Produced with Sixty Strains. A. B. Wadsworth, M. D., *Director, The Division of Laboratories and Research, New York State Department of Health, Albany, N. Y.*
A Study of the Classification of the Meningococci. A. B. Wadsworth, M. D., Ruth Gilbert, and Alice Hutton, *Division of Laboratories and Research, New York State Department of Health, Albany, N. Y.*
Some Points on the Biology of the Pfeiffer Bacillus. E. O. Jordan, *Department of Hygiene and Bacteriology, the University of Chicago, Chicago, Ill.*
The Persistence of Different Strains of the Influenza Bacillus of Pfeiffer in Cases of Influenza and in Healthy Persons. W. H. Park, M. D., Olga Povitzky, M. D., and Georgia Cooper, *Research Laboratories, New York City Department of Health.*
A Study of the Bacillus Influenza of Pfeiffer. A. B. Wadsworth, M. D., *Director, The Division of Laboratories and Research, New York State Department of Health, Albany, N. Y.*

Third Session.

Wednesday, October 29, 9: 00 A. M.
Hotel Grunewald, Room F.

(Joint Session. See program under Public Health Administration Section).

Fourth Session.

Thursday, October 30, 9: 00 A. M.
Hotel Grunewald, Room F.

General Business.
Committee Reports.

All papers are limited to 15 minutes; discussions to 5 minutes.

Election of Officers.

The Bacteriological Examination of Soft Drinks. William Royal Stokes, M. D., *Bureau of Bacteriology of State and City Departments of Health, Baltimore, Md.*

The Practical Disinfection of Tuberculous Sputum. William Royal Stokes, M. D., and Capt. C. H. Douthirt, M. D., U. S. A.

A Standard System of Bacteriological Dilution. William Firth Wells, M. D., *Boston, Mass.*

PROGRAM OF THE SOCIOLOGICAL SECTION

Chairman, Louis I. Harris, M. D., *New York City.*
Vice-Chairman, Ira S. Wile, M. D., *New York City.*
Secretary, Walter H. Brown, M. D., *Bridgeport, Conn.*

First Session.

Monday, October 27, 2:00 P. M.
Hotel Grunewald, Room E.
The Relation of Living Conditions to Health.

Business Session.

Appointment of Nominating Committee.

The Family Budget and Health. Royal S. Meeker, *Commissioner of Labor Statistics, Washington, D. C.*

The Sociological Aspect of Housing. Ira S. Wile, M. D., *New York City.*

The Sanitarian's Definition of a Living Wage. Donald B. Armstrong, M. D., *Director, Community Health Demonstration, Framingham, Mass.*

Discussants: Michael M. Davis, Ph. D., *Director, Boston Dispensary, Boston*, and E. H. Lewinski-Corwin, Ph. D., *New York City.*

Second Session.

Tuesday, October 28, 9:00 A. M.
Hotel Grunewald, Cave.
Joint Session with Industrial Hygiene Section.

The Influence of Industrial Conditions and Relations on Health.

The Point of View of the Employer. Magnus W. Alexander, *Director, National Industrial Conference Board, Boston.*

The Point of View of the Employee. Hugh Frayne, *National Organizer, American Federation of Labor, New York City.*

The Point of View of the Public Health Worker. Louis I. Harris, M. D., *Director, Bureau of Preventable Diseases, Department of Health, New York City.*

Discussants: Donald B. Armstrong, M. D., *Framingham, Mass.*, and Walter H. Brown, M. D., *Health Officer, Bridgeport, Conn.*

Third Session.

Wednesday, October 29, 9:00 A. M.
Hotel Grunewald, Room E.
Symposium on Community Medicine.

Community Medicine and Public Health. Ernst C. Meyer, Ph. D., *Director, Department of Surveys and Exhibits, International Health Board, New York City.*

Health Centers. Francis E. Fronczak, M. D., *Health Commissioner, Buffalo, N. Y.*

Discussants: James A. Tobey, *Wilmington, Del.*, and B. R. Rickards, *State Health Department, Albany, N. Y.*

An Evaluation of the Cincinnati Social Unit Experiment. Haven Emerson, M. D., *Medical Adviser, Charity Organization Society, New York City.*

All papers are limited to 15 minutes; discussions to 5 minutes.

Discussants: S. Josephine Baker, M. D., *Director, Division of Child Hygiene, New York City Department of Health*, Bessie A. Haasis, R. N., *Educational Secretary, National Organization for Public Health Nursing, New York City*, Michael M. Davis, Ph. D., *Boston, Mass.*, Mary Beard, R. N., *Boston, Mass.*, Wm. DeKleine, M. D., *Board of Health, Flint, Mich.*, and Paul B. Brooks, M. D., *State Department of Health, Albany, N. Y.*

Fourth Session.

Thursday, October 30, 9:00 A. M.
Hotel Grunewald, Room E.

Business Session.
Report of Nominating Committee.
Election of Officers.
The Sociological Aspect of Hookworm. Oscar Dowling, M. D., *State Commissioner of Health, New Orleans, La.*
Public Health Education in the South. Thorndike Saville, *University of North Carolina, Chapel Hill, N. C.*
The Sociology of a Dispensary. E. H. Lewinski-Corwin, Ph. D., *Secretary, Public Health Committee, New York Academy of Medicine, New York City.*
Discussant: J. A. Ferrell, M. D., *International Health Board, New York City.*

PROGRAM OF THE SECTION ON INDUSTRIAL HYGIENE.

Chairman, J. W. Schereschewsky, M. D., *Washington, D. C.*
Vice-Chairman, F. D. Patterson, M. D., *Harrisburg, Pa.*
Secretary, A. J. Lanza, M. D., *Washington, D. C.*

First Session.

Tuesday, Oct. 28, 9:00 A. M.
Hotel Grunewald. Cave.

(Joint meeting. See program under Sociological Section.)

Second Session.

Tuesday, October 28, 2:00 P. M.
Hotel Grunewald, Room C.

Chairman's Address. Need and Method of Coördinating Federal, State and Local Health Agencies in Promoting Industrial Hygiene. J. W. Schereschewsky, M. D., *Assistant Surgeon-General, U. S. P. H. S.*
A Program for Organizing and Coördinating Industrial Clinics. Bernard J. Newman, *Consulting Hygienist, U. S. P. H. S.*
Utilizing the Out-Patient Department for Industrial Clinic Work. Wade Wright, M. D., *State Department of Labor and Industries, Boston, Mass.*
Utilizing Records of Plant Medical and Surgical Departments for Furthering Plant Hygiene. A. R. Hackett, M. D., *Delray Industrial Hospital, Detroit, Mich.*
Placement and Replacement of Employees on the Basis of Physical Examinations. C. D. Selby, M. D., *Toledo, Ohio.*
Classifying Employees and Increasing Production by Improving Their Physical Condition. William J. Curry, M. D., *American Thread Co., Holyoke, Mass.*

All papers are limited to 15 minutes; discussions to 5 minutes.

THIRD SESSION.

Wednesday, October 29, 9:00 A. M.
Hotel Grunewald, Room C.

Health Hazards of Non-Poisonous Dusts. EMERY R. HAYHURST, M. D., *Department of Public Health and Sanitation, State Department of Health, Columbus, Ohio.*

Health Hazards of the Dye Industry. A. K. SMITH, M. D., *Medical Director, DuPont Co., Wilmington, Del.*

Systemic and Dermatic Effects from the Use of Cutting Oils and Compounds. H. D. PEASE, M. D., *Lederle Laboratories, New York, N. Y.*

Industrial Fatigue; Present Status of Investigations. FREDERIC S. LEE, PH. D., *Consulting Physiologist, U. S. P. H. S.*

Standards for Impairments and Defects Including Disposition of Cases of Tuberculosis. J. S. BILLINGS, M. D., *Medical Director, New York Telephone Company, New York, N. Y.*

Studies in Quantitative Dust Analysis. C.-E. A. WINSLOW, D. P. H., and Associates, *New Haven, Conn.*

FOURTH SESSION.

Thursday, October 30, 9:00 A. M.
Hotel Grunewald, Room C.

Special Health Hazards of Women Industrial Workers. LILLIAN ERSKINE, *State Department of Labor and Industry, Trenton, N. J.*

The Insurance Company in Industrial Hygiene. AUSTIN D. REILEY, *Assistant Inspector of Risks, Mutual Life Insurance Company, New York, N. Y.*

The Industrial Physician and Welfare Work. H. P. HOURIGAN, M. D., *The Larkin Company, Buffalo, N. Y.*

The Part Played by Community Insanitation in the Incidence of Industrial Disease. ROGER G. PERKINS, M. D., *Western Reserve University Medical School, Cleveland, Ohio.*

Industrial Medical Departments as Promoters of Public Health. E. S. GODFREY, JR., M. D., *Epidemiologist, State Board of Health, Albany, N. Y.*

PROGRAM OF THE SANITARY ENGINEERING SECTION.

Chairman, MR. E. A. FISHER, *Rochester, N. Y.*
Vice-Chairman, MR. PAUL HANSEN, *Springfield, Ill.*
Secretary, MR. SAMUEL A. GREELEY, *Chicago, Ill.*

Correspondence concerning the Sanitary Engineering Section is to be addressed to the program chairman, Mr. Hansen, State Department of Public Health, Springfield, Ill.

FIRST SESSION.

Monday, October 27, 2:00 P. M.
Hotel Grunewald, Parlor G.

General Business.

Appointment of Committees.

Report of Committee on Milk Pasteurization. H. A. WHITTAKER, *Director, Division of Sanitation, Minneapolis, Minn., Chairman.*

DISCUSSION: By JOSEPH RACE, PROF. C.-E. A. WINSLOW and W. H. DITTOE.

All papers are limited to 15 minutes; discussions to 5 minutes.

Report of Committee on Refuse Collection and Disposal. Major E. D. Rich, *Chief Engineer, State Board of Health, Lansing, Mich., Chairman.*

Discussion: By S. A. Greeley, W. C. Folsom and E. E. Lafaye.

The Charleston (West Virginia) Typhoid Outbreak of 1917. Mayo Tolman, B. S., *Consulting Engineer, Charleston, West Virginia.*

Report of Committee on Waterworks Operation and Analytical Methods. Mayo Tolman, B. S., *Chairman.*

Report of Committee on Swimming Pools. G. W. Simons, Jr., *Chief Engineer, State Board of Health, Jacksonville, Fla., Chairman.*

Report of Committee on Constitution. Samuel A. Greeley, *Consulting Engineer, Chicago, Chairman.*

Second Session.

Tuesday, October 28, 2:00 P. M.
Hotel Grunewald, Parlor G.

General Business.

Election of Officers.

Report of Committee on Sanitary Control of Waterways. Harrison P. Eddy, *Consulting Engineer, Boston, Mass., Chairman.* Discussion.

Report of Committee on Sewerage and Sewage Disposal. Kenneth Allen, *Board of Estimate and Apportionment, New York, N. Y., Chairman.*

Discussion: By J. L. Ludlow, Samuel A. Greeley, Chas. Gilman Hyde, Mayo Tolman, C. G. Gillespie, John W. Alvord, Robert B. Morse, Charles Saville, Theodore Horton, and Paul Hansen.

Report of Committee on Sewage Works Operation and Analytical Methods. C. B. Hoover, *Chemist-in-Charge, Division of Sewage Disposal, Columbus, Ohio, Chairman.* Discussion.

Treatment of Wastes from Sugar Refineries. Langdon Pearse and Samuel A. Greeley, *Consulting Engineers, Chicago.*

Discussion: By W. H. Dittoe and Robert Spurr Weston.

Health in Industry. Charles Saville, *Director of Industrial Development of the Dallas Chamber of Commerce, Dallas, Texas.*

Recent Development in England of the Acid Treatment of Sewage and Activated Sludge Process. Thorndike Saville, *Professor of Sanitary Engineering, University of North Carolina.*

Third Session.

Wednesday, October 29, 9:00 A. M.
Hotel Grunewald, Parlor G.

General Business.

New Specifications for Health Officers. Morris Knowles and Maurice Scharff, *Consulting Engineers, Pittsburgh, Pa.*

Discussion: By Dr. Thos. D. Parke, Professor C.-E. A. Winslow, Professor Edward Bartow, John H. O'Neill, Dr. W. S. Rankin, L. C. Frank and S. A. Greeley.

Report of the Committee on Water Supply. G. G. Earl, *General Superintendent, Sewerage and Water Board, New Orleans, La.* Discussion.

Water Treatment at St. Louis. Edward E. Wall, *Water Commissioner, St. Louis, Mo.*

Water Purification in Ohio. W. H. Dittoe, *Chief Engineer, State Department of Health, Columbus, Ohio.*

Discussion: By C. A. Emerson, E. D. Rich, Theodore Horton and Paul Hansen.

Effects of Pollution of Deep Wells at Lansing, Michigan. Major Edward D. Rich, *State Sanitary Engineer, Lansing, Michigan.*

An Instance of a Public Water Supply Contaminated by an Interconnected Private Water Supply. Caleb M. Saville, *Chief Engineer, Hartford, (Connecticut) Waterworks.*

All papers are limited to 15 minutes; discussions to 5 minutes.

PROGRAM OF THE SECTION ON VITAL STATISTICS,

Chairman, Wm. H. Guilfoy, M. D., *New York City.*
Vice-Chairman, R. H. Coats, *Ottawa, Ont.*
Secretary, Richard C. Lappin, *Washington, D. C.*

First Session.

Monday, October 27, 2: 00 P. M.
Hotel Grunewald, Room D.

Traffic Regulation as a Means of Preventing Injury and Death from Street Vehicles. S. J. Bryne, M. D., *Assistant Registrar of Records, City of New York, Department of Health, Brooklyn, N. Y.*

Election of Nominating Committee.

Results Appearing in the Forthcoming Second Bulletin of United States Life Tables. James W. Glover, Ph. D., *Professor of Mathematics and Insurance, University of Michigan, and Expert Special Agent, Bureau of the Census, in charge of the preparation of the United States Life Tables, Ann Arbor, Mich.*

Report of the Committee on Institutional and Hospital Statistics. Frederick L. Hoffman, LL. D., *Third Vice-President and Statistician. Prudential Insurance Company of America, Newark, N. J., Chairman.*

Report of the Committee on Morbidity Reports and Statistics. John T. Black, M. D., *State Commissioner of Health, Hartford, Conn., Chairman.*

Report of the Committee on Membership. Wm. F. Petrie, *Chief, Division of Vital Statistics, Department of State, Lansing, Mich., Chairman.*

Report of the Committee on Registration Affairs. William H. Davis, M. D., *Chief Statistician for Vital Statistics, Bureau of the Census, Washington, D. C., Chairman.*

Report of the Committee on the Accuracy of Certified Causes of Death and Its Relation to Mortality Statistics and the International List. Haven Emerson, M. D., *New York City, Chairman.*

Second Session.

Tuesday, October 28, 2: 00 P. M.
Hotel Grunewald, Room D.

Report of Nominating Committee and Election of Officers and Section Council.

Vital Statistics in Canada. R. H. Coats, B. A., *Dominion Statistician, Ottawa, Ont.*

Malaria Control in Georgia. T. F. Abercrombie, M. D., *Secretary, State Board of Health, Atlanta, Ga.*

Malaria in California. Frederick L. Hoffman, LL. D., *Third Vice-President and Statistician, Prudential Insurance Company of America, Newark, N. J.*

Pellagra in Mississippi. R. W. Hall, M. D., *Director, Bureau of Vital Statistics, State Board of Health, Jackson, Miss.*

The Economics of Health Protection. Henry B. Hemenway, M. D., *District Health Officer, Division of Vital Statistics, State Department of Public Health, Springfield, Ill.*

Report of the Committee on Legislation. W. A. Plecker, M. D., *State Registrar of Vital Statistics, Richmond, Va., Chairman.*

Report of the Committee on Amendments to the Standard Certificate of Birth. William H. Davis, M. D., *Chief Statistician for Vital Statistics, Bureau of the Census, Washington, D. C., Chairman.*

Report of the Committee on Morbidity Records and Mortality Statistics in Industry. Louis I. Dublin, Ph. D., *Statistician, Metropolitan Life Insurance Company, New York City, Chairman.*

All papers are limited to 15 minutes; discussions to 5 minutes.

THIRD SESSION.

Wednesday, October 29, 9:00 A. M.
Hotel Grunewald, Room D.

Report of Section Council and Nomination of Standing Committees for Ensuing Year.

Infant Mortality in the Registration Area for Births. WILLIAM H. DAVIS, M. D., *Chief Statistician for Vital Statistics, Bureau of the Census, Washington, D. C.*

DISCUSSION: Led by S. J. BYRNE, M. D., and ARTHUR J. O'LEARY, M. D., *Assistant Registrars of Records, Department of Health, New York City.*

The Relationship between Birth Registration and Infant Mortality. ROBERT E. MILLS, M. A., *Director of Records, Statistics, and Social Service, Toronto, Can.*

Popularizing Vital Statistics. C. ST. CLAIR DRAKE, M. D., *State Director of Public Health, Springfield, Ill.*

Report of the Committee on Nonresident Deaths. W. R. BATT, M. D., *State Registrar of Vital Statistics, Harrisburg, Pa., Chairman.*

Report of the Committee on the 1920 Census and Its Relation to Vital Statistics. JOHN E. MONGER, M. D., *State Registrar of Vital Statistics, Department of State, Columbus, Ohio, Chairman.*

Report of the Committee on Forms and Methods of Statistical Practice. C. ST. CLAIR DRAKE, M. D., *State Director of Public Health, Springfield, Ill., Chairman.*

Report of the Committee on Standard Symbols in Vital Statistics Analytics. EDWIN W. KOPF, *Assistant Statistician, Metropolitan Life Insurance Company, New York City, Chairman.*

Report of the Committee on Resolutions. HON. J. W. ARMSTRONG, *Municipal Commissioner of Manitoba, Winnipeg, Manitoba, Chairman.*

FOURTH SESSION.

Thursday, October 30, 9:00 A. M.
Hotel Grunewald, Banquet Hall.

Joint Session with Public Health Administration Section.

Question Box.

Chief Defects in the Certification of Births and Deaths with Remedies?

Would It not Be Better to Omit Item 16 of the Standard Certificate of Death and Insert Date of Death in Item 17?

Above topics will be discussed by DOCTORS GUILFOY, BATT, BYRNE, O'LEARY, GRAM, and DAVIS.

Statistics of the Influenza Epidemic.

Influenza, United States Army, 1918: Some Observations, Statistical and Otherwise. COL. D. C. HOWARD and LIEUT.-COL. A. G. LOVE, *Medical Corps, Washington, D. C.*

Influenza Morbidity Statistics: General Results of Surveys by the United States Public Health Service. W. H. FROST, *Surgeon, United States Public Health Service, Washington, D. C.*

Influenza Epidemic in the Registration Area for Deaths. WILLIAM H. DAVIS, M. D., *Chief Statistician for Vital Statistics, Bureau of the Census, Washington, D. C.*

Statistics of the Metropolitan Life Insurance Company Covering the Influenza Epidemic. LEE K. FRANKEL, PH. D., *Third Vice-President*, and LOUIS I. DUBLIN, PH. D., *Statistician, Metropolitan Life Insurance Co., New York City.*

Report of the Committee on Influenza Statistics. EDWIN W. KOPF, *Assistant Statistician, Metropolitan Life Insurance Company, New York City, Chairman.*

Vital Statistics of the Influenza Epidemic in Connecticut. PROF. C.-E. A. WINSLOW, *Yale University*, and J. F. ROGERS, M. D., *New Haven, Conn.*

The Preliminary Report on Certain Statistics of the Influenza Epidemic of 1918 in New York State. OTTO R. EICHEL, M. D., *Director, Division of Vital Statistics, State Department of Health, Albany, N. Y.*

Variations in Influenza Incidence and Mortality at Different Periods of the Epidemic. EDGAR SYDENSTRICKER, *Statistician, United States Public Health Service, Washington, D. C.*

Unfinished Business.

PROGRAM OF THE SECTION ON FOOD AND DRUGS

Chairman, HERMANN C. LYTHGOE, *Boston, Mass.*
Vice-Chairman, FRED C. BLANCK, *Baltimore, Md.*
Secretary, JAMES O. JORDAN, *Boston, Mass.*

FIRST SESSION.

Monday, October 27, 2: 00 P. M.
Hotel Grunewald, Parlor.

General Business.
Appointment of Committees.

The Drug Question.

The Commercial Production of Arsphenamine by the Massachusetts State Board of Health. Chairman's Address. HERMANN C. LYTHGOE, *Director, Division of Food and Drugs, State Department of Health, Boston, Mass.*

Report of Committee on Drugs and Nostrums. ARTHUR J. CRAMP, M. D., *Director of Propaganda for Reform Department of the "Journal of the American Medical Association," Chicago, Ill.*

Administrative Handling of the Drug Addict: Its Benefits and Dangers. ERNEST S. BISHOP, M. D., F. A. C. P., *Clinical Professor of Medicine, New York Polyclinical Medical School, New York City.*

DISCUSSION: C. E. TERRY, M. D., *New York*, and SENATOR G. H. WHITNEY, *Mechanicsville, N. Y.*

Report of Committee on Habit Forming Drugs. CHARLES E. TERRY, M. D., *New York City.*

Commercial Food Control.

Purpose and Function of Commercial Control Laboratories. LUCIUS M. TOLMAN, *Chief Chemist, Wilson and Company, Chicago, Ill.*

The Self-Imposed Inspection Plan of the National Canners Association. HENRY M. LOOMIS, *National Director of Inspection, National Canners Association, Washington, D. C.*

Report of Committee on Canning Problems. W. D. BIGELOW, PH. D., *Chief Chemist, National Canners Association, Washington, D. C.*

Food Production, Conservation and Distribution.

Report of Committee on Conservation and Development of Food Supplies. CARL L. ALSBERG, M. D., *Chief, Bureau of Chemistry, Washington, D. C.*

Report of Committee on Preparation, Packing and Transportation of Food. W. H. LIPMAN, M. D., *Medical Director, Swift and Company, Chicago, Ill.*

Report of Committee on Retail Distribution and Marketing of Food. MARION TALBOT, A. M., LL. D., *Professor of Household Administration, University of Chicago, Chicago, Ill.*

SECOND SESSION.

Tuesday, October 28, 9: 00 A. M.
Hotel Grunewald, Parlor.

General Business.
Appointment of Committees.

Dehydrated Foods.

What Should be the Basis of the Control of Dehydrated Foods? SAMUEL C. PRESCOTT, *Professor of Industrial Microbiology, Massachusetts Institute of Technology, Cambridge, Mass.*

DISCUSSION: E. V. MCCOLLUM, M. D., *Baltimore, Md.*, and R. S. HILTNER, A. M., *Denver, Colo.*

All papers are limited to 15 minutes; discussions to 5 minutes.

Relation of Food to Health

Relation of the Diet to Public Health. E. V. McCollum, M. D., *Professor of Physiological Chemistry, Johns Hopkins Medical School, Baltimore, Md.*

Report of Committee on Relation of Food to Disease. Milton J. Rosenau, M. D., *Professor of Preventive Medicine and Hygiene, Harvard Medical School, Boston, Mass.*

Report of Committee on Nutritional Problems. Henry C. Sherman, Ph. D., *Professor of Food Chemistry, Columbia University, New York City.*

The Milk Question.

Problem of Adequate Milk Supply. Henry C. Sherman, Ph.D., *Professor of Food Chemistry, Columbia University, New York City.*

Discussion: C. E. North, M. D., *New York City*, and H. W. Redfield, Ph. D., *Washington, D. C.*

Some Nutritional Aspects of the Modern City Milk Problem. (Stereopticon illustrations.) John R. Murlin, Ph. D., *Director of Department of Vital Economics, University of Rochester, Rochester, N. Y.*

Discussion: E. V. McCollum, M. D., *Baltimore, Md.*, and H. C. Sherman, Ph. D., *New York City.*

Further Observations on the Influence of Milk in the Spread of Communicable Diseases. Eugene R. Kelley, M. D., *State Commissioner of Health, Boston, Mass.*

Organization of the Control of Pasteurization. Frederick O. Tonney, M. D., *Director of Laboratories, Department of Health, Chicago, Ill.*

Discussion: Prof. E. O. Jordan, *Chicago, Ill.*

Report of Committee on Dairy Products. Harry A. Harding, Ph. D., *Professor of Dairy Bacteriology, College of Agriculture, Urbana, Ill.*

Third Session.

Wednesday, October 29, 9: 00 A. M.
Hotel Grunewald, Room F.

Joint Session with Public Health Administration and Laboratory Sections.
(See program under Public Health Administration Section.)

Fourth Session.

Thursday, October 30, 9: 00 A. M.
Hotel Grunewald, Parlor.

General Business.
Election of Officers.

Problem of Meat Control.

Federal Meat Inspection. John R. Mohler, M. D., *Chief, Bureau of Animal Industry, Washington, D. C.*

State and Municipal Meat Inspection. John R. Mohler, M. D., *Chief, Bureau of Animal Industry, Washington, D. C.*

Results Obtained by Combining a Number of Insanitary Slaughter Houses into One Central Abbatoir with a City Inspector. Ed. H. McCuistion, *Former Mayor, Paris, Tex.*

Meat Inspection Law for Municipalities. W. Parker Jones, LL. B., *Attorney-at-Law*, Washington, D. C.

The Country Slaughter House: How to Build it. George H. Parks, *Expert in Sanitation, Bureau of Animal Industry, Washington, D. C.*

All papers are limited to 15 minutes; discussions to 5 minutes.

Wholesale and Retail Distribution of Meat. Louis D. Hall, *Specialist in Charge, Marketing Live Stock and Meats, Bureau of Markets, Washington, D. C.*

Report of Committee on Meat Inspection. George H. Shaw, C. E., *Chief, Division Housing and Sanitation, Department of Health, Philadelphia, Pa.*

Report of Committee on Cold Storage. Peter H. Bryce, M. D., *Chief Medical Officer, Canadian Immigration Service, Ottawa, Can.*

Food Administration.

Army Food Supply; Specifications and Standards; Inspection and Control. E. L. P. Treuthardt, *Captain, Subsistence Division, Inspection Branch, Quartermaster Corps, Washington, D. C.*

Report of Committee on Municipal Food Administration. Ole Salthe, *Board of Health, New York City.*

SPECIAL PROGRAM ON CHILD HYGIENE.

Organization Committee.

Julius Levy, M. D., *Director, Division of Child Hygiene, Newark, N. J., Chairman.*

S. Josephine Baker, M. D., *Director, Bureau of Child Hygiene, Department of Health, New York City.*

J. A. Nydegger, M. D., *Custom House, Baltimore, Md., Secretary.*

Taliferro Clark, *Assistant Surgeon General, U. S. Public Health Service, Washington, D. C.*

Grace Whitford, M. D., *Tampa Bay, Fla.*

O. B. Nesbit, *Medical Inspector of Schools, Gary, Ind.*

Lydia Allen DeVilbiss, M. D., *State Board of Health, Topeka, Kan.*

Grace Meigs, M. D., *Children's Bureau, Washington, D. C.*

Godfrey Pisek, M. D., *American Pediatric Association, New York City.*

Adelaide Brown, M. D., *State Board of Health, Sacramento, Cal.*

Henry L. K. Shon, M. D., *State Board of Health, Albany, N. Y.*

First Session.

Tuesday, October, 28, 2: 00 P. M.
Hotel Grunewald, Room E.

The Organization of a Bureau of Child Hygiene. S. Josephine Baker, M. D., *Director of the Bureau of Child Hygiene, Department of Health, New York City.*

School Hygiene for Rural Communities. Grace Whitford, M. D., *Director of the Bureau of Education and Child Welfare, State Board of Health, Fla.*

The Respective Functions of State Departments of Health and Education in School Hygiene. W. S. Small, M. D., *Specialist in School Hygiene, Federal Department of Education, Washington, D. C.*

Second Session.

Thursday, October 30, 9: 00 A. M.
Hotel Grunewald, Room D.
A Symposium on State Programs of Child Hygiene.

The Ideal Program. A. J. McLaughlin, *Assistant Surgeon General, United States Public Health Service, Washington, D. C.*

Actual Working Programs. State Department of Health Representatives of: North Carolina, Pennsylvania, Louisiana, New Jersey, Illinois.

SPECIAL PROGRAM ON PERSONAL HYGIENE.

Chairman, Dr. A. R. Dinwiddie, *President of Tulane University, New Orleans, La.*
Secretary, W. A. Evans, M. D., *Chicago Tribune, Chicago, Ill.*

Correspondence concerning this program should be addressed to Dr. W. A. Evans, 906 Tribune Building, Chicago, Ill.

First Session.

Tuesday, October, 28, 2: 00 P. M.
Hotel Grunewald, Parlor.

Chairman's Address. Dr. A. R. Dinwiddie.
Types of Fatigue. Percy G. Stiles, Ph. D., *Harvard Medical School, Boston, Mass.*
A Pure Milk Supply. C. E. North, M. D., *New York City.*
Mouth Hygiene. J. J. Sarrazin, D. D. S., *National Dental Association, American Academy of Periodontology, New Orleans, La.*
Why Crippled Feet? A. R. Reynolds, M. D., *Former Commissioner of Health, Chicago, Ill.*

Second Session.

Wednesday, October 29, 9: 00 A. M.
Hotel Grunewald, Parlor.

Anxiety and Fear. Frankwood Williams, M. D., *The National Committee for Mental Hygiene, New York City.*
Discussion: Opened by George A. Hastings, *Secretary, State Charities Aid, New York City.*
Motivation in Personal Hygiene. Thomas D. Wood, M. D., *New York City, Chairman, Committee on Health Problems, National Council of Education.*
Baths. J. H. Kellogg, M. D., *Sanatorium, Battle Creek, Mich.*
Little Foxes of the Modern Health Movement. W. S. Sadler, M. D., *Chicago, Ill.*

AUXILIARY MEETINGS.

Held under the joint auspices of the American Public Health Association and the Women's Clubs of New Orleans.

First Auxiliary Mfeting.

Monday, October 27, 2: 00 P. M.
Hutchinson Memorial Building, Tulane University, Canal St., New Orleans.

Milk as a Food. E. V. McCollum, M. D., *Johns Hopkins University, Baltimore, Md.*
Women's Clothes. Jeannette Throckmorton, M. D., *Iowa State Health Department, Chariton, Iowa.*
Tentative speakers from the International Conference of Women's Physicians of the Y. W. C. A., New York City.

Second Auxiliary Meeting.

Tuesday, October 28, 7: 45 P. M.
Hutchinson Memorial Building, Tulane University, Canal St., New Orleans.

Personal Hygiene of Conditions Peculiar to Women. Effie L. Lobdell, M. D., *Chicago, Ill.*, and Clelia D. Mosher, M. D., *Palo Alta, Cal., Leland Stanford University, Representative of the New York, Y. W. C. A. Conference.*

In addition there will be other auxiliary programs of this Section held under joint auspices of the Personal Hygiene Section of the American Public Health Association and the New Orleans Social Workers Conference, H. L. Hopkins, chairman. These meetings will occur at places and times to be set forth in the official program.

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Vol. IX NOVEMBER, 1919 No. 11

PRESIDENTIAL ADDRESS OF LEE K. FRANKEL, PH. D.

PRESENTED TO THE ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION, NEW ORLEANS, LA., OCTOBER 27TH, 1919.

Ladies and Gentlemen:

In the address which I had the honor of delivering before you at the last annual meeting, on the subject of the future of the Association, I took occasion to speak of the physical condition of our society and dwelt upon the need of increasing its financial resources. I called attention to the fact that the Association had long since outgrown its swaddling clothes and that if it were to attain its position as the premier health association in the United States and, in fact of the American continent, it was necessary that it should be established upon a firm financial footing so as to enlarge its activities and to carry forward the message of health conservation.

I stated in this address that the Association should have a minimum income of fifty thousand dollars per annum in order to properly conduct its work. It is with no sense of disappointment that I call your attention to the fact that our income for the last fiscal year was very nearly thirty-four thousand dollars. This is an increase of nearly twelve thousand dollars over the preceding year and indicates most convincingly that, with a continued determined effort on the part of the members, we can very shortly attain the goal which we set out for last year. Instead of being dispirited or discouraged at the result of our efforts I am, as a matter of fact, very highly encouraged at the enthusiastic coöperation which we have received from all sides during the past year in our efforts to increase our membership and to bring the Association prominently before the public. It is with great delight that I mention the fact that the total number of members of the Association and subscribers to the JOURNAL is, at the present moment, well above the forty-five hundred mark. Since the intensive campaign which we began in March last for new members, we have succeeded in enrolling upwards of thirteen hundred new members, and the end is not yet. There is every likelihood that if the membership campaign is continued during the coming year the society should readily pass the six thousand mark.

Practically for the first time in its history, the Association is self-sustaining and ends the year with a handsome surplus of over five thousand dollars. This has been accomplished notwithstanding the fact that your Board of Directors authorized largely increased expenditure along the lines of the program which we mapped out for ourselves several years ago. The outgo of the Association for the year 1918–1919 was over thirty thousand dollars as compared with six-

teen thousand seven hundred dollars for the year 1917–1918. I am confident that year by year the Association will continue to grow in the number of its adherents and in the efficacy of the work which it may accomplish.

The financial statement measures only in a minor way the accomplishments of the Association during the past year. It may be said without making any invidious distinctions that the coöperation of officers, directors and committees has been whole-hearted and continuing. Whether the influenza epidemic or the war brought about these results, it is difficult to say. In all fairness, however, it should be stated that an unusual amount of interest has been evinced in the Association by all who are connected with it. There seems to be a united impulse on the part of members to consider the Association as their Association and to place it in the foremost rank of nation-wide health activities.

Before passing on to the more important phases of the Association's work, may I add one word more on the financial side. In addition to attempting to obtain regular members, a beginning was made during the past year to obtain sustaining members paying $50 per annum. A limited number of appeals was sent to financiers, representative business men and manufacturers who, it was thought, would be interested in the development of modern health work in their respective communities, with the request that they become sustaining members of the Association. The results have been all that could be expected. I have no doubt that if this campaign be actively continued we shall within a very short period be able to secure at least five hundred sustaining members for the Association. This alone would give an income of twenty-five thousand dollars per annum. If each member of the Association would take this matter to heart and endeavor to obtain one sustaining member, we need not in the future worry about our financial status.

Corporate Memberships.

The efforts made last year to increase corporate memberships have been continued. In this direction the insurance companies and fraternal orders have been constantly canvassed through the mail and by personal appeals at their meetings and conventions. While the results obtained during the past year have not been pronounced, they are quite satisfactory and indicate clearly that when the Association is in a position to offer something to the fraternal orders and to insurance companies which will be of special interest to them, their further coöperation and financial support may be counted upon. It might be well for the Program Committee next year to consider the desirability of giving space on the program to a consideration of the special health problems which affect insurance and fraternal interests and possibly even to organize a section which they might be invited to join.

I shall leave for the secretary's report and for the various business meetings of the Association, a detailed statement of the many things which have been done by your officers in promoting the Association's manifold activities. This report will include such matters as the publication of the News Letter, a proposed health syllabus, the work done by special committees on cantonments, model health legislation, the health of the foreign-born and public health education. It will include as well a statement regarding the possibility of publishing a popular health magazine of which mention was made at the last annual meeting. All of these matters are of extreme interest and should be given the most careful con-

sideration by this body. Rather than go into any prolonged discussion of these subjects at this time, I would prefer, with your permission, to consider with you some of the larger problems of health which confront the Association and in which it must be in a position to give help and assistance.

State Health Societies.

Nothing more clearly indicates the renewed interest in the Association's work than the results which have been obtained during the past year in organizing state health associations. There will probably be at this meeting representatives of such associations. Under the provisions of the constitution, they are privileged to elect members to the Board of Directors. In the opinion of the Board of Directors, it was deemed desirable to let each of these new state groups organize themselves along the lines which they considered best and for the present not to limit the type of organization in any way. It will probably be desirable at this meeting to appoint a special committee on state associations who shall draft constitutions and by-laws under which in future these associations shall be affiliated with the parent association. In a number of instances, the state associations will act upon the suggestion made to them of including not merely the professional group but laymen as well. In due time these associations should become the nucleus of intensive propaganda for public health education. The union of public health officials with the laity working together for improvement of health conditions, for adequate appropriations, and for necessary legislation is highly to be desired and can readily be accomplished if in each state and subsequently in each community these joint organizations can be brought into existence.

National Health Council.

You will recall that at the last meeting of the Association, an admirable paper was presented by Dr. George E. Vincent on "Teamplay in Public Health Work." Doctor Vincent called attention in his address to the necessity for greater coördination of the various public and private agencies in the United States engaged in public health activities. As a result of his address the Board of Directors was authorized to call together representatives of various national health associations and to take up with them the question of better coördination. I am pleased to advise you that as a result of various meetings which have been held during the past year, the National Health Council has been formed. There are included in this council seventeen of the most representative national societies in the United States engaged in some phase of work relating to the improvement of the public health. They are the American Red Cross, American Child Hygiene Association, Child Health Organization, American Social Hygiene Association, American Pediatric Society, National Committee for Mental Hygiene, Conference of State and Provincial Health Boards, Association of Industrial Physicians and Surgeons, American Society for the Control of Cancer, National Housing Association, Life Extension Institute, National Organization for Public Health Nursing, National Safety Council, United States Public Health Service, American Public Health Association, National Tuberculosis Association, and National Child Welfare Association. At the last meeting which was held in New York in May, the president of your Association was appointed chairman of the council and was authorized to appoint a committee to prepare a constitution and by-laws. This committee it is hoped will present its report in the very near future. It is

quite likely that the newly formed organization will be actively at work during the coming winter. It is planned for the present that the council shall meet quarterly and to have continuous interchange of ideas in the interim, if necessary, through the employment of a paid secretary. The council marks a new development in public health work. I am sanguine enough to hope that its development will mean what Doctor Vincent so aptly called "teamplay" and that it may lead to the organization of new phases of health work as well as the elimination of unnecessary ones.

Legislation.

In line with its policy as a propagandist organization, your Board of Directors during the past year felt warranted in taking active participation in certain health legislation which came to its notice. Along this line your Executive Committee, at the request of the National Tuberculosis Association, authorized a communication to be sent to Congress in advocacy of the establishment of a Bureau of Tuberculosis in the United States Public Health Service. Certain of the officers and members have, in addition, made personal and written appeals to senators and representatives. A similar resolution, favoring an appropriation for the study of influenza was sent to the congressional committee having the matter in charge. Your president, with Dr. Josephine Baker, president of the American Child Hygiene Association, appeared before the congressional committee having under consideration a bill introduced by Congressman Jeannette Rankin for the protection of maternity and infancy, in opposition to a provision in the bill for the establishment of separate boards of maternal aid. We recommended that the act should be administered by legally constituted agencies of the states, viz., the state boards of health. The bill failed to pass. It is gratifying to report that in an amended bill which has recently been introduced into Congress, there have been incorporated the recommendations which were made by Doctor Baker and myself at the hearing above referred to. Your committee also favored the Lever Bill for the promotion of rural health. The bill called for an appropriation by the Federal government to be expended under state boards of health for the development of rural sanitation and hygiene. By direction of the Executive Committee, letters were addressed to state health officers throughout the country urging them to communicate with their representatives in Congress. This bill likewise failed to pass.

The American Red Cross.

One of the most significant developments of the past year is the determination on the part of the American Red Cross to enter the public health field. This determination has already found expression in the organization of a system of public health nurses in communities where such nursing effort has not already been established. The tentative plans of the American Red Cross call for an even more novel development based upon the creation of public health centers in which the various chapters of the Red Cross will be asked to function. The possibilities which lie behind the American Red Cross are incalculable. With its millions of members, its thousands of local chapters and with its ability to raise large sums of money from the general public, the Red Cross may well hope to carry on a campaign of education which will reach not only the large cities, but the smallest hamlets. It is a sign of the time that in its tentative plans, as outlined by its chief representative, the Red Cross feels the necessity of the closest contact with the

American Public Health Association. There is probably no other movement in which the need of obtaining the coöperation of the professional element is so necessary as it is in health work. The powers and duties which are vested in the health officer in every community make it impossible to undertake any campaign for the eradication of disease and the development of effective health administration without the coöperation, hearty support and guidance of the local, state or Federal health officers. Since the plans of the American Red Cross are still tentative, I would recommend the appointment of a special committee of the Association to confer with the officers of the Red Cross whenever the latter are prepared to give practical expression to their highly interesting plans.

Compulsory Sickness Insurance.

Another important development of the past few years, and in particular of the last year, has been the rapidly growing belief on the part of certain groups that the problem of sickness may be solved by a scheme of compulsory insurance. This development I feel has reached a point where it should be given consideration by the American Public Health Association.

Are the advocates of compulsory sickness insurance in the right? Can the problem of sickness be solved by the method of compulsion and insurance? To be able to answer these questions we must first understand what the sickness problem is. The following summary of the report of the Pennsylvania Sickness Insurance Commission is typical of similar reports from other states. There are constantly more than three hundred and eighty-five thousand employees in the state of Pennsylvania suffering from illness. Of these approximately one hundred and forty thousand are cases of severe sickness and two hundred and forty-five thousand are cases of less serious sickness. The average loss of working time among employees in the state is at least six days each year because of sickness. The death rates in Pennsylvania are higher than those for the registration area of the country as a whole. The infant death rate is highly excessive in many parts of the state. At the nominal rate of two dollars a day, the wage loss to employees of Pennsylvania every year, because of illness, is at least thirty-three million dollars. The average cost of medical care for every employee's family is between thirty and fifty dollars a year. Employees in the state lose at least sixteen million eight hundred thousand days' work annually because of sickness and large numbers of actually sick men and women are at work every day. The state spends over six million dollars every year directly for the treatment of sickness. In addition four million dollars is spent for the maintenance of institutions for the care of defectives, a large part of which expenditure is undoubtedly made necessary by the neglect of sickness and its consequences. One hundred and seventy-five hospitals reported to the State Board of Charities in 1916 that 75 per cent of their patients had been treated free and 40 per cent of their hospital days had been free days. Hospital accommodations in the state averaged little more than one-half the standard minimum of five beds per thousand of population. Even if good medical care were available and adequate, most employees could not afford to pay for it. Approximately one-fourth of those actually disabled by illness never received medical care and a larger percentage of those ill are still trying to work without attention. Fully one-half of existing sickness could be eliminated if proper preventive measures were taken. At present from 70 to 75 per cent of the

school children in Pennsylvania are physically defective and for the most part the defects are correctable, if treated in time. A large number of the communities in the state have no active health work, much less an adequate appropriation for health activities.

It will be seen from this report that there are three elemental factors which enter into the problem of sickness and its reduction.

First, the problem of preventable and communicable diseases.

Second, the problem of adequate medical care, and

Third, the problem of the compensation of wage earners against the wage losses caused by illness.

In any consideration of the subject, it is essential that these phases of the problem should be clearly kept in mind.

Let us consider the first two of these in their order. The problem of preventable and communicable disease is fundamentally a function of the health authorities. Sickness, like the law, is no respecter of persons. It is not limited to any particular group. The rich and the poor, the worker and the idler are its subjects. In its infectious and contagious forms, the menace which it carries necessitates entrusting its eradication to properly constituted health authorities. This function cannot be delegated to insurance committees or similar bodies by reason of the special powers which through law are vested in the health official and which must remain his if his work is to be effective and controlling. For this reason if for no other prevention of disease cannot be considered a phase of an insurance scheme. It should remain in the hands of legally authorized health administrators.

The question of adequate medical care is more involved and more difficult of solution. There can be no doubt that in practically every community there are many sick individuals, as shown in the Pennsylvania report, who obtain inadequate medical attention or none at all, and that there are thousands who are the beneficiaries of charitable medical service either from the individual practitioner, the hospital or the dispensary.

The state has in the past undertaken the care and cure of certain diseases, not as a matter of charity but in line with wise public policy. In most communities the treatment and care of smallpox patients has been taken out of the hands of the individual practitioner and put into those of the health official. The same is true of other epidemic and communicable diseases. More recently we have seen the principle extended to include the treatment and care by health officials of tuberculosis and the venereal diseases. In one state (North Carolina) clinics for the periodic examinations of citizens have been opened. In other states we find infant welfare clinics, maternity clinics and clinics for industrial diseases conducted under the auspices of the health authorities. These are not limited to the indigent but are for all classes. They resemble our public schools in that the latter are intended to prevent the perpetuation of ignorance and the former are fostered to prevent the perpetuation of disease.

What are the implications of the extension of this principle?

Will its extension, in time, place the treatment of a larger number of transmissible diseases in the hands of public health authorities? What changes in medical practice may be evolved in such extension? Whatever they may be, it must be sufficiently clear to all the members of the American Public Health Association that the subject requires the most careful and earnest consideration on the part of both the health officers and the medical profession. If this problem

is solved, the other phase of the sickness problem—compensation for wage loss—will gradually assume smaller proportions and can probably be handled either through insurance or in other ways. This last phase of sickness is an economic rather than a medical problem.

I cannot, in the limitations of this address, go into the interesting subject more extensively. I hope I have demonstrated that it vitally effects the members of the American Public Health Association. In this belief I would recommend the appointment of a special standing committee to study the subject.

Coördination of Federal Health Activities.

The most momentive development in the annals of health during the past year is unquestionably the creation of ministries of health in England and Canada. No one can doubt that the example set by these two countries will give impetus to a similar movement in the United States.

Efforts which have been made in the past in the United States for a Federal Department of Health have proved abortive. The campaign of the "Committee of One Hundred" was without results. The Owen Bill and similar bills have failed of passage. Several bills of the same purpose are before the present Congress. There are constitutional questions involved in the functions of such a department which still remain unsolved. Perplexing questions of state and federal rights must be considered. There are legal doubts as to whether under the constitution greater powers could be vested in a department of health than are now given to the Public Health Service. On the other hand, if a broad interpretation of these powers is not possible, there may well result, as President Goodnow has so clearly indicated, an amendment to the constitution under which larger powers would be given to some centralized health agency. Assuredly the public health is an asset of equal importance to commerce and agriculture and deserves equal recognition in our conception of government.

Whatever may be said as to the desirability or possibility of creating a Federal department of public health with a cabinet minister it cannot be gainsaid that there is need of better coördination of the various Federal bureaus dealing with the problem of the public health. Nothing possibly will better illustrate the defect in the present organization than the health bills introduced into the last session of Congress, some of which were adverted to above. The Rankin Bill for the creation of boards of maternal aid was sponsored by the Children's Bureau of the Department of Labor. The Lever Bill for the promotion of Rural Health was similar in purpose to the Rankin Bill but was more extensive in scope and included provision for general rural sanitation and hygiene in addition to general maternity and child care. This bill had the endorsement of representatives of the Public Health Service. Another bill introduced into Congress provided for a reorganization of the Bureau of Education to make it a Department of Education instead of a bureau and for the extension of the bureau's work, so as to enable it to engage not only in health education but to include phases of health administration and supervision which ordinarily are the functions of a health department. It is claimed that in the preparation of these bills and in their advocacy before Congress there was no coöperation between the bureaus involved. There are those here who will contend that this is putting it very mildly. There are probably others who will have no hesitation in stating that instead of coöperation in the Federal bureaus there has been the very

reverse and that the relations of the bureaus to one another result in confusion, waste of effort and disharmony in the development of a well coördinated health program.

The time has come, I believe, for the American Public Health Association to give earnest consideration to this important matter. If a concerted, unified, comprehensive Federal health program is to be evolved which should be a pattern for the states to follow; if we are to increase our national vitality; if we are to profit by the lessons of the draft, which showed only too glaringly our physical defects and our lack of provision to prevent them; if we are to avoid premature decay and unnecessary death; if we are to develop a people which shall be virile, strong, competent and efficient, then we must have a centralized, coördinated, progressive Federal health agency under competent leadership, and with adequate staff and ample financial resources. Such a centralized agency must replace our present anachronistic system, under which responsibility for the preservation of the people's health is vested in various departments of the Federal government unrelated to one another, and which results in duplication of effort, overlapping of work and corresponding waste and inefficiency. It is immaterial for our present purposes whether centralization be effected through the creation of a department of health, through a newly created bureau or whether an existing bureau be utilized. It is important, however, that Congress enact legislation at an early date which shall make for intelligent centralization, coördination and expansion of Federal health activities.

The Board of Directors has given earnest consideration to this important matter of coördination of Federal health activities, and at its summer meeting authorized the appointment of a special committee on coördination to coöperate, if possible, with similar committees of the American Medical Association and the Conference of State and Provincial Health Officers. Various informal meetings have been held with representatives of the two associations, but no definite conclusions have been arrived at. In order that the subject may be given the consideration which it deserves, a place has been given to it on the program of this meeting in the hope that there will be a full and free discussion. Probably as a result of such discussion the Association may deem it desirable to take definite action.

In laying down my office as president, may I again emphasize some of the things to which I alluded last year and which have repeatedly been dwelt upon by speakers at these meetings. I refer in particular to the need of building up an efficient corps of men competent to handle the problems of community health administration. A chain is as strong as its weakest link. It is useless to talk of improvements in Federal service and in state health administration, unless in our local work we can maintain and develop the same high standards. These cannot be obtained until in all communities we have trained men who give full time to their work, who are adequately paid and who will receive adequate appropriations for the work which they have in hand. There is no more important function of the American Public Health Association than to develop a professional group of skilled and sympathetic health officials who thoroughly understand the problems which confront them and who have the ability and the training to solve them. The Association is more and more realizing its mission in this direction. Year by year it is extending its activities, and year by year, if we continue along the present lines, we may hope to accomplish the purpose for which the Association was originally created, namely the prevention of unnecessary disease and untimely death.

A SUPREME NATIONAL NEED: COÖRDINATION AND ENLARGEMENT OF FEDERAL HEALTH ACTIVITIES.

W. S. RANKIN, M. D.,
Secretary, North Carolina State Board of Health.

Read before General Sessions, American Public Health Association, at New Orleans, October 29, 1919.

Too many cooks in health administration is the impending danger, suggests Dr. Rankin. It is time for the A. P. H. A. to insist on a "whole-time" Health Department for the Central Government. Health and medical associations should coöperate to effect this. They should find out what needs to be done and use their influence to have it done.

FOUR Cabinet Departments, the Treasury, Labor, Commerce and Agriculture, are today sharing, and a fifth, the Interior, is attempting to share in what apparently is the most popular duty of the Federal Government —public health administration. This popularity of health work with the executive division is reflected in the legislative division of the government. There are now pending before Congress seven important health bills, all of which represent the ideas of different legislative groups and executive departments without any attempt being made to combine and coördinate parallel and conflicting opinions. This general and divided interest of the government in public health work, where singleness of purpose and unified plan should exist, is many years out of date.

This divided and uncoördinated Federal health administration exists in spite of the fact that the last three presidents are on record as opposed to it. President Roosevelt said: "The first legislative step to be taken is that for concentration of the proper bureaus into one of the existing departments." President Taft said: "Certainly the economy of the union of all health agencies in the National Government in one bureau or department is wise." President Wilson said: "In order to avoid confusion in policies, duplication of effort, and to bring about more effective results, unity of control in the administration of public health activities of the Federal Government is obviously essential." . . . One of the greatest lessons of the war, a lesson written in the blood, barely dry, of hundreds of thousands of soldiers, is that unity of direction is necessary to prevent gaping and overlapping of work, and friction and jealousy,—that unity of command in dealing with any great and complex problem is essential to success.

The present form of Federal health administration is both a grievous hindrance to efficiency in national health work and a positive danger to state health work, and so should appeal to both those whose viewpoint is national and to those whose states contain them wholly. A danger to the states, because the abnormal form of health administration at Washington tends to spread, it is communicable. The Federal agencies engaged in health administration seem to feel that just as a man cannot serve two masters, so a single state health agency cannot serve or effectively coöperate with two Federal supervisors, that it will hate the one and love the other. As evidence of this tendency and this feeling, witness the provisions in the two bills, one sponsored by the Department of Labor, through the Children's Bureau, the other

by the Department of the Interior, through the Bureau of Education, each of which creates within the states its own state agency, which, with what is left of a state board or department of health, would impose upon each state a three-headed health administration. We would have one state commission coöperating with Miss Lathrop and in charge of all infant and maternal hygienic and sanitary problems, embracing about one-third of the total opportunities for reduction of death rates; another state commission, in the form of the state department of education, coöperating with Professor Claxton, and having charge of the entire field of school sanitation and hygiene, including medical inspection, and having to do with at least one-third of the population of a state at its most strategic age period; and lastly, we would have what was left of the old board or department of health, coöperating with Doctor Blue, until perchance another Federal health agency created a fourth state health commission. And so we see that the abnormal administration at Washington is highly communicable, dangerous to each state capitol, and that the safety of state health administration is conditioned upon treatment applied at Washington.

Considerations of treatment always raise questions as to cause. How does it happen that exactly half of the Cabinet Departments are participating in Federal health administration? This has come about because the primary Federal health agency has been incapable of taking advantage of the large fields for public health service as they have been opened up by research and demonstration. Research has outrun resources. The scientist has outstripped the statesman. Great opportunities for saving thousands and hundreds of thousands of lives have been unclaimed, gone begging. Under these circumstances it was natural that other Federal health agencies, alert to opportunity, responsive to popular demand, and with ability to secure the needed resources, have sought to cultivate what, without them, would have existed as fertile but barren soil. For this response to public needs, for using unrecognized and unappropriated opportunity, these Federal agencies that have lately assumed certain duties in Federal health administration deserve not criticism, but whole-hearted commendation.

Passing now from considerations of cause to those of responsibility, it should be said that the less attention given this phase of the subject the better. We are all partly responsible for existing conditions and it is altogether irrelevant at this time as to who is most responsible. Criticism is nearly always destructive, and this is a time for constructive thinking. It is a time when we cannot afford to be separated by the errors of the past, but when we should be solidly united by the challenge of the future.

Basing treatment on cause and recognizing the absence of a single strong Federal health agency, capable of utilizing the opportunities for public health work and meeting reasonable public demands for such work, as the cause of our present divided form of Federal health administration, the treatment would naturally consist in the establishment of such a health agency. This would be brought about by a consolidation of all agencies engaged in Federal health administration in one bureau, or in a department, or under a commission, with such extensions and additions to functions as national opportunities and resources permit. This is the strategic time for such a movement. The example of both England and Canada just having established a Ministry of Health, and the recent startling findings of the draft boards that thirty-eight per cent of our

population at its healthiest age period is physically unfit for purposes of national defense, could all be effectively utilized for coördinating and enlarging Federal health work. The field of public health is big enough and fundamentally important enough to demand the whole-hearted and the undivided attention of any single Federal agency. This Association, for a number of years, has concerned itself seriously with the question of whole-time health officers for the local governments; it is now time for the Association to insist on a whole-time health department for the Central Government.

As to plan of procedure: Only the novice and the man of careless reputation prescribes for his patients, no matter how obvious the indications for certain remedies, without a complete and thorough preliminary examination. If this principle is important in prescribing for the individual's health, of how much greater importance is it when applied to mapping out a complete and well considered plan for national health. The first essential step in the reorganization of Federal health activities is a thoroughgoing investigation to determine, first, what the Federal Government, under the Constitution, can do for national health; second, exactly what it is now doing; and third, just what it should do. Speaking as a member of the Council on Health and Public Instruction of the American Medical Association and as a member of the Executive Committee of the State Health Officers Association, I wish to say that such information does not exist.

The only objection that can possibly be raised to the preliminary study before proposing certain definite changes is the loss of time. That this objection will not apply is clear when we consider the present situation in Congress. As I have already stated, there are seven important public health bills pending before Congress, carrying appropriations from $2,000,000 to $100,000,000. The Federal Government is facing a deficit of $3,000,000,000. The majority in Congress are determined to make a record of curtailing rather than enlarging appropriations. It is, therefore, practically impossible to get through a bill reorganizing Federal health work within the next three or four months. No time will be lost, therefore, if we use the next three or four months in securing the necessary information as to what the government is doing and should do in health administration. In fact, instead of losing time, we save time by doing what, in the opinion of the committees representing the American Medical Association and the State Health Officers Association, is absolutely necessary to insuring the enactment of constructive legislation.

Such an investigation as is needed cannot be made by an extra-governmental agency, which will not have the power to summons witnesses, to require them to testify, to produce records. This has been tried without success. The agency making the needed investigation must have authority to summons witnesses, administer oaths, and require testimony and to produce records. This means that only a governmental commission can make the necessary preliminary investigation. As between a Presidential Commission and a Congressional Commission to make such a study, the advantages are clearly with the Congressional Commission. The Congressional Commission, with funds to employ experts in health work and administration, would be far more likely to make an investigation with recommendations that would be acted upon by Congress than would be the case with a commission appointed by the President.

Influenced by these considerations, a joint committee representing the Ameri-

can Medical Association and the State Health Officers Association, after conferring with a number of interested and influential members of the Senate and Congress, were instrumental in getting Senator France, Chairman of the Senate Committee on Public Health, and Mr. Dennison, a member of the Inter-State Quarantine Committee of Congress, before which public health matters are heard, to introduce in both Houses of Congress, a concurrent resolution which provided for a Congressional investigation and recommendations as to Federal health activities.

The resolution is as follows:

"*Resolved* by the Senate (the House of Representatives concurring), That a Joint Committee be and is hereby created, consisting of three members of the United States Senate and three members of the House of Representatives to be appointed by the President of the Senate and the Speaker of the House respectively, to make a survey of and report on those agencies of the Government of the United States which relate to the protection and promotion of the public health, sanitation, care of the sick and injured, and the collection and dissemination of information relating thereto; provided that the Medical Department of the United States Army and the Bureau of Medicine and Surgery of the United States Navy shall not be included within the scope of this survey.

SECTION 2. That such Committee is directed and empowered to report to the Congress not later than March 1, 1920:

(a) The statutory powers and duties conferred by the Congress on any department, division, bureau, office or agency of the United States Government to carry on any work pertaining to the conservation and improvement of the public health, together with any rules and regulations authorized or promulgated thereunder;

(b) The organizations now existing in the Federal Government for the purpose of carrying out these powers and duties, together with the personnel of, appropriations for and expenditures by each department, division, bureau, office and agency during the fiscal year ended June 30, 1919;

(c) The coördination now existing between said departments, divisions, bureaus, offices and agencies, together with any conflict, overlapping or duplication of powers, duties, functions, organization and activities;

(d) The coöperation and coördination now existing between the Government of the United States and the government of the several states or extra-governmental agencies for the conservation or improvement of the public health;

(e) Such further information as such Committee may deem proper;

(f) Such recommendations as such Committee may deem advisable to offer for the improvement of the public health work of the United States Government.

SECTION 3. That such Committee be and hereby is authorized during the Sixty-sixth Congress to send for persons, books and papers, to administer oaths, and to employ experts, deemed necessary by such Committee, a clerk and a stenographer to report such hearings as may be had in connection with any subject which may be before such Committee, such stenographer's services to be rendered at a cost not exceeding one dollar ($1.00) per printed page; the expenses involved in carrying out the provisions of this resolution one-half paid to be out of the contingent fund of the Senate and the other half out of the contingent fund of the House; and that such Committee may sit during the sessions or recesses of the Congress."

The practical and the obvious thing for the American Public Health Association to do under the circumstances is to appoint a strong committee to represent it and to act with the Council on Health and Public Instruction of the American Medical Association and the Executive Committee of the State Health Authorities in supporting the movement now definitely launched in Congress to make our national government adequate to meet the interstate public health needs of the United States, and I sincerely hope that the Association will promptly adopt such a course.

THE OUTDOOR POOL.

OBVIOUS NEED FOR CLEAN POOLS.

CHARLES V. CRASTER, M. D., D. P. H.,
Health Officer, Newark, N. J.

That almost any bit of water will serve for a wading pool seems to be the idea in practice. Dr. Craster has tested such pools and finds that they need to be as well constructed as bathing pools and as well cared for. Chlorination is necessary when they can not otherwise be controlled. : : : : : : : : : : : : : :

SPEAKING generally it is impossible to expect the water of swimming or wading pools, natural or artificial, to be clean in the ordinary meaning of the word. The question arises as to the necessity for expecting too great a standard of purity in these places. It is obvious, however, that there must be considerable danger to the health of children where the contents of any pool approaches a high degree of impurity.

In running brooks and some natural pools the current of fresh water is sufficient to keep the contents pure no matter how great the number of patrons. The same cannot, however, be said of natural streams or artificial ponds where the water's flow is so slight as to permit a real condition of over-contamination. Some light upon the conditions existing in city canals and wading pools was secured by an investigation upon the use for wading and swimming by children of a large canal running through a thickly populated district and several wading pools in use in public parks. Although the investigation was carried out in 1917 it represents present canal conditions and like conditions in uncontrolled public wading pools.

The canal in question is located in Newark, receives no sewage whatever from any locality during its whole course, but does receive storm water from house roofs and surface drains along its banks. There is an imperceptible current towards an outlet in the Passaic River through various canal locks. This canal is a very popular swimming place for the boys of this city and great difficulty is experienced in preventing its use for this purpose during hot weather. There was no known cause of pollution of the water of this canal at the time the investigation was made.

Samples of water were taken during the latter part of June. Four places popular among the boys in the city for swimming and wading were selected along the canal banks. Four samples of water taken in sunlight at these places showed the bacterial count to be between 1,400 and 225,000 bacteria per cubic centimeter. Fermenting bacilli were present in all, two samples showed colon bacilli in 1/20 of a cubic centimeter and in 1/10 of a cubic centimeter in another two.

The report of the city bacteriologist is unfavorable to the use of this canal water for bathing purposes not only on account of the results of the test made but also because of the great danger of the water receiving serious pollution in passing through the city and suburbs. It may be said in passing that the unclean condition of this canal water was not the result of barge contamination, the canal not being used for freight at this time. It would be well nigh impossible to make the water of such a canal fit for bathing purposes. Any open canal is naturally the catch-all of undesirable rubbish. Decomposing animals frequently contaminate its depths

and when it passes close to houses its use is altogether too convenient to be resisted as a depository for refuse.

It is safe to assume that the results obtained in the case of the canal could be duplicated in any other canal situated within a city's limits.

The filling up of natural streams and pools by city improvements has brought on an insistent cry for wading pools in public parks.

The resultant development of the artificial wading pool has been commendable. There are, however, more disadvantages than advantages in attempting to provide such facilities without due regard to the dangers of an insufficient supply of water and in the faulty materials used in construction.

It may be asked how is a wading child liable to harm no matter what kind of water is present in the pool. It is well to remember that children are frequently in bathing costume, splashing is part of the game and certainly very intimate contact with the hands and water takes place in playing with floating objects. Children will fall into the water and even put their faces to the surface. This being admitted, there can be no argument against clean water for wading pools, as there is none against that for swimming or bathing purposes. There may indeed be a further argument by reason of the more tender age of the children and their greater susceptibility to infection.

The wading pools investigated were those maintained during the summer in the various public parks. No swimming was allowed in any of them and they were under constant supervision by park attendants during use. In none of these pools had any efforts been made to control the purity of the water, the general scheme of construction being to imitate a natural wading pool in the country. The attendance of children of nearly all ages at these places was high during hot



POOL 1.

weather and in some instances very young children were found bathing in the water. The conditions found were as follows:

Pool No. 1—approximately 150 x 100 feet. Depth of water 18 inches. Construction of pool, sand and gravel. Natural earth grading at sides. Water supplied from city mains. No continuous supply. Pool emptied and cleaned once a week. Fresh water added every day to make up for daily wastage. Average attendance of children at this pool 500 daily. The pool was in use during the time the samples of water were taken. Water appeared muddy with a black scum floating on surface in some parts.

Results of samples of water taken:

Sample	*Date*	*Temp. of Water*	*Time*	*Bacteria*
1	July 30	90°F	10.40 a. m.	7,500 per cc.
2	July 30	91°.8 F	5.15 p. m.	Too numerous to count. Fermenting bacilli in 1/10 cc.

The sample taken at the end of the day—No. 2—indicated the progressive contamination of the pool in use. The pool was quite separate from any other body of water and was surrounded by drives and walks.

Pool No. 2 situated in a large public



POOL II.

park surrounded by trees and shrubbery. The size is 350 x 100 feet, the depth of water 20 inches. It is divided off but is part of a larger lake. Banks and floor are of loose sand with gently sloping sides. City water is supplied from a one inch stand pipe making a continuous flow of water towards the outlet. The pool



POOL III.

is emptied once a week, scraped once a year and is treated with copper sulphate twice a week to keep down algæ.

The daily attendance of children 1,000 to 1,500,—no bathing.

Samples of water taken from this pool and results are shown as follows:

Sample	*Date*	*Temp. of Water*	*Time*	*Bacteria*
1	July 30	81°F	11.40 a. m.	Too numerous to count. Fermenting bacilli in 5 cc.
2	July 30	90°F	4.55 p. m.	31,000; fermenting bacilli in 1/10 cc.
3	Aug. 2	85°F	12.20 p. m.	12,000; fermenting bacilli in 1/20 c.c
4	Aug. 2	82°F	2.15 p. m.	12,000; fermenting bacilli in 1/10 cc.

In spite of the continuous supply of water this pool did not appear to be clean, water was muddy and opaque at the time of inspection. The excessive attendance of children overtaxed the diluting power of the incoming supply of fresh water.

Pool No. 3. This pool, by far the largest of the three, has an extent of nearly half an acre. It forms part of a much larger lake which is fed from underground springs. It is partly surrounded by trees and low shrubs and has a natural bed of sand. New sand is added every second

year. It is cleaned once a year and the water drawn off once a week. Daily average of children is 1,000 to 2,000. No bathing is allowed. Depth of water is from 16 to 24 inches.

Sample	*Date*	*Temp. of Water*	*Time*	*Bacteria*
1	July 30	90°F	1.20 p. m.	19,000; no fermenting bacilli
2	July 30	80°F	4.35 p. m.	10,000; fermenting bacilli in 5 cc.
3	Aug. 2	85°F	12.45 p. m.	3,000; fermenting bacilli in 1/2 cc.
4	Aug. 2	85°F	2.40 p. m.	85,000; fermenting bacilli in 1/5 c.c.

The bacterial counts of this pool were interesting on account of the large size and the great body of water available for dilution. The contamination here was due to an indifferent flow of current and no means of using the diluting power of the main lake.

In the investigation of the wading pools the contaminations have been shown to be due to the faulty laying out of these places as well as to the absence of a sufficient fresh water supply to dilute subsequent contamination. It is evident that wading pool water can be considerably contaminated irrespective of the fact that it may be part of a large sheet of water. In such places, where natural conditions are simulated, a good flow of water would considerably improve the sanitary quality of the water.

The purity of the water of the pools here described was subsequently controlled to a large extent by the use of chlorinated lime. In the subsequent supervision periodic chlorination was advised with consistent results.

Although any pool or pond might be safely used for wading with proper care, the only logical outdoor pool is one built along similar lines to the indoor bath house. These should have cement floors, sides, and coping, with a good supply of fresh running water. Showers and toilets should be conveniently located and no wading in shoes and stockings permitted.

Summary.

Water in wading pools is just as likely to be contaminated as bath water.

Water for diluting contents in wading pools is not usually sufficient.

Children frequently go into wading pools after having walked barefooted for miles upon roads.

The close contact between the wading child and the pool water is evident.

Contamination of pool water is brought about by insufficient diluting water and overcrowding of space by patrons.

Wading pools should be constructed of cement and properly equipped as baths.

Chlorination of all wading pools should be a routine proceding when content contamination cannot be otherwise controlled.



ANTI-MALARIAL MEASURES.

Here and on other pages of this issue of the Journal there are presented illustrations of anti-malarial procedure in Southern states. The illustrations are from the camera of Mr. C. A. Abele, U. S. P. H. S., whose fields have been in Mississippi and Florida. This picture shows the improvement of stream banks. Sunshine inhibits oviposition, the smooth edges offer no lodging places for rubbish and the cleared banks facilitate oiling. Other illustrations will be found on pages 837, 843, 848 and 853.

WHAT IS THE MATTER WITH PUBLIC HEALTH TODAY?

H. W. Hill, M.D.
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Plain talk with the suggestion that the health officer has police powers oftentimes neglected to assume voluntary work not really within his province. Dr. Hill emphasizes the need of official fighting of disease and would leave baby weeks and milk depots to voluntary, civil organizations. : : : : : : : : : : : :

STOCKRAISING the human is the "big business" of modern public health. Think of public health as you will, from any angle you choose—you will find that no item of it lies outside that phrase, which completely covers all real public health endeavor, effort or aspiration, ideals and practice.

The matter with public health is that we all are trying to stockraise the human without realizing that that is what we are attempting; without seriously figuring the size of the job; without agreeing who is to do which—or how. We are agreed on the "why"—the desperate need of it; we are agreed on the "when"—right now; but the "what," the "who" and the "how" remain unsettled.

Stockraising cattle means beginning with whatever cattle are to be had; eliminating the "unfit"; providing the best of physiological care of the "fit"; and protecting the fit from invaders—from designing invaders such as cattle rustlers and wolves; from undesigning invaders, such as accidents and infections. Of course, when invaders, despite all our precautions, succeed in doing damage, repair of that damage is necessary; if the damage is physical, repairing it involves medicine and surgery, i. e., therapeutics.

These procedures, applied to cattle, are as ancient as mankind, and are not today immensely difficult, except regarding those invaders causing the infectious diseases, which it is now recognized, constitute the great modern problem of all kinds of stockraising, not only of that which deals with cattle.

Stockraising vegetables, flowers, fowl or wheat, involve just the same factors—eliminating the unfit; cultivating the fit; protecting the fit from invaders—from thieves, from accidents, from infection; and the most difficult of these is protecting the fit from infection, from rusts, smuts, rots, scales, bugs, beetles, *ad infinitum*.

We have to deal with exactly the same items in stockraising the human, for we must (1) eliminate the unfit—of which by far the most imminently important are the hereditary feebleminded; we must (2) provide for the fit physiologically proper conditions, especially at birth, during infancy, in school, viz., proper food, drink, housing, sleep, work, play; we must (3) protect these fit from invaders—from designed attacks, from accidents, from infection; and the greatest of these is infection.

The patching up of those humans who, despite all precautions, suffer from assault, accident, or disease, is the business of medicine, surgery, nursing—i. e., of therapeutics; and so far therapeutics is not usually included in public health, although perhaps it will be later on.

Truly, up-to-date public health is a huge job! There is no exaggeration

whatever in saying, that as the business of the Spanish-American war was to the business of the Great War, so is the business of the Great War to the business of real public health—to stockraising the human; for the human race is numerically the largest and sociologically the most difficult species which ever has presented itself for stockraising operations, and it is the most difficult, partly on account of its size, partly on account of its traditions, but chiefly because its only controlling authority is itself, because its own consent must be had before it can be stockraised at all.

The general proposition that public health is a good thing has, it is true, been accepted by the mass of the civilized world and there are now in operation a thousand most strenuous undertakings carried on in its name. But there still is no general agreement as to just what are real essentials; as to who shall do this, who that, as to how all shall be done; nor as to this most crucial detail—what, of that which is essential, must be done by compulsion, what may be done voluntarily.

The answer to this last question will go far towards answering the others.

Humanity has long since settled on broad lines that compulsion in public health, as in other matters, can be justified and receive assent only when the individual who is compelled is in some way dangerous to others.

In public health relations, this dangerousness is physiological, not moral or physical; the only dangerous individual, in the public health sense, is one whose physiological ills are transmissible, hence one who is hereditarily feebleminded, or actively infectious.

In all other forms of disease or defect, those not transmissible, the sufferer because not physiologically dangerous to others, may be guided in his physiological conduct, in the choice of his therapeutics, by pretty much any light he may choose, just as he may eat, vote, or expend his own money. There are of course some limitations, for instance, deliberate suicide is barred; and the individual may come under some form of legal compulsion, although not physiologically dangerous, if his physiological ills make him physically dangerous to others, for instance if he is drunk or insane. But there is no public health compulsion impinging on anyone who is not a physiological danger to others. Compulsion of the individual for his own physiological good does not exist in civilian public health. Even when his physiological condition is dangerous to others as well as to himself, he can be compelled only so far as is necessary to remove the danger to others; he cannot be compelled to take care or treatment which is exclusively designed for his own good. To put it briefly, public health compulsion stops short always of therapeutics.

Humanity has settled then that items 1 and 3 of our stockraising program may be compulsory, but item 2 (and therapeutics) are as a rule strictly voluntary. Items 1 and 3, those dealing with feebleminded-ness and with infection, not only may be compulsory but they must be compulsory, —for humanity fails often to do the right thing for its own good; and still oftener fails, when the good of others is the goal. Hence exists not only the right to compel, but the need for compulsion, whenever the rights of others are concerned.

Now when we consider who shall do the compelling, it is quite obvious at once that only governmental bodies clothed with police power can do it; certainly volunteers cannot.

But is it not equally true that our police power bodies should not do the voluntary, but that our volunteers

should? It is true that our official police powers are, here and there, already conducting some one or more of the items, prenatal work, obstetrical work, infant welfare, pre-school inspection, medical school inspection, adult physical examinations, those recognized activities which constitute our item 2, the non-compulsory list of physiologically regenerative measures for the race. But these official bodies while carrying on these voluntary measures, generally neglect their proper functions, that is, the use of their compulsory police powers against infection. They become awkward at using them, sometimes even afraid, so accustomed are they to the non-compulsory activities. Some public health propagandists, official and unofficial, even state frankly that compulsion is useless. Thus it is we are rapidly developing a situation where our police powers jolly the public, coax, appeal; cultivating the measures useful to the individual, taking on more and more of the non-compulsory program; but at the same time neglecting, even refusing, to carry out the compulsory measures which they alone can carry out. These are the very measures they were created to carry out; those compulsory measures which are not primarily for the good of the individual who is to be controlled, but are rather for the good of other individuals who are to be protected from him.

This principle is fundamental; rights of the individual cease where rights of other individuals begin. Personal liberty is not liberty for each one to do absolutely as he chooses, but to do absolutely as he chooses, provided he hurts no one else.

Against the physical invasion of the rights of others by nations, we have our military and naval forces; against burglars or footpads, we have the physical force of the constable; against the swindler we have the civic courts; against physiological invasion we have our health departments. The physical police have no power to compel any citizen to live thus or so, if he is not, by his otherwise living, injuring others. The civil courts cannot compel or prevent buying and selling, except as injury to others is involved in the transactions. Nor have health departments the right to direct or control the physiological operations of the citizen, except as those operations may harm others.

Until our views of governmental control change very much indeed from established principles, health departments that neglect to carry out their police powers in full, while pushing to the limit non-compulsory physiological welfare work, are exactly in the position of physical police who ignore street fights to run a Sunday school, or of civil courts which ignore swindling to push trade. Sunday schools should be run, commerce should be encouraged, non-compulsory physiological welfare work should go on, but our police powers have no rights in these matters, since they have their own clear duties assigned to them in a totally different direction.

The prevailing conceptions of the ordinary health officer as a weak-kneed, amateur policeman, whom it is fun to elude, or on the other hand as an official philanthropist whose chief duty is to advise mothers how to feed babies, to induce "foreigners" to "clean up," and to intervene in neighborhood squabbles about bad smells, are really due to the misconceptions of his work, held by himself, to inadequate equipment, and above all to the other inadequacies and fallacies of part-time service.

These misconceptions and the frightful inadequacies and disruptions of our official health services are inevitable chiefly because of the farcical status of the part-time health officer. He is the

present-day jest of the community as the part-time volunteer fire-department was of an earlier generation.

The fundamental misconceptions are these; that the practicing physician is from the nature of his training, necessarily and inevitably "learned in sanitary science"; that if he is practicing medicine, he is therefore already engaged in something closely allied to public health; and that the public health of the community is anyway so small a matter that he may conduct it quite sufficiently well as an incident, as a small side issue, of his own daily private practice! In brief the vicious circle is that the community sees nothing to be done in public health; the part-time health officer is paid to do that nothing; and, because he does that nothing quite successfully, the community is the more firmly convinced than ever that there is nothing to be done!

Our health department work is about 1 per cent efficient, not 90, 80, 70; not 10, or 5 or 2; it is about 1 per cent efficient, or perhaps less. Here and there in isolated communities, the figures are greater. Here and there, on a broad scale, great victories have been achieved. In smallpox and in typhoid fever, in malaria and yellow fever, public health has made good. In other diseases, it has been demonstrated that it is possible to make good, provided men and money are available. But this is as far as we have gone in public health. Therapeutics, medicine, surgery, nursing, have done wonders, because men and money have been spent on them like water. But public health is starved on both items almost to extinction in proportion to the demands.

The breaking of the vicious circle may be accomplished by introducing a whole-time health officer and leaving him to work out the salvation of the public health in his community. But often, the inadequacy of program and equipment results in the whole-time man doing little better than his part-time predecessor. Moreover the community as a whole does not appreciate prevention, it wants something it can see for its money. Hence there is the old temptation, too strong for most health departments, to collect garbage or to have "clean up" weeks—to make a showing. Meantime death and disease run along, uninterrupted. Hence also the new temptation to have "baby weeks," to establish "milk depots," to do the spectacular, attractive, seeable things, and in like proportion to avoid coming to real grips with real disease and death, tuberculosis, syphilis, etc.

Surely baby weeks and milk depots are good? Yes, but they can be done by voluntary associations. They afford an invaluable and tangible means of securing the coöperation of the seething energies of the public, disposed to public health; they are voluntary and do not require health department control; they are at present experimental and therefore not ripe for governmental action. The wise health department will do quietly its proper police functions, with the funds it has for that purpose. It will encourage and aid in the formation of self-financing volunteer agencies for those things which do not require police powers. It will steer clear of therapeutics.

Summary.

The stockraising of the human race is big business—too big for any one body, department or organization, to carry on.

Its first item, the elimination of the hereditary feebleminded, although in a broad sense public health is, on account of its technicalities both in physiology and in law, rather a business for a special official organization than for health departments as they now are understood.

Its second item, providing physiologically for the fit, is so tremendous, so experimental, so bound up with sociology, of so purely a voluntary nature, that it should be left to the enormous organized voluntary energies of the public itself.

Its third item, protection from disease, is by all concerned granted to be the essential *raison d'être* of health departments. It requires the compulsory powers they have, and the negligence of health departments to occupy this their own field, combined with their grasping after every other form of activity, has made of them too often mere laughing stocks.

Therapeutics, until such time, if ever, as medicine and surgery are applied compulsorily to the human as they are to cattle, should form no part of any compulsory organization work.

The whole-time officer who does his own proper duty against disease will have his hands full, and will find that non-compulsory fields have waiting to occupy them staunch moral supporters with time and money plentiful, who will co-operate with him in his work all the better for working themselves on these voluntary measures.

But the program of modern public health, the stockraising of the human, is no longer a matter for individual communities to face, isolated and alone. It requires nation-wide coördination, a building of individuals into compact organizations, coöperation of these with each other, and a close coöperation, but not union, with the official police powers.



PERSONALITY IN PUBLIC HEALTH

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A score card for health officers is a novel suggestion, but nevertheless one in accord with good common sense. Mr. Tobey argues that a responsible business executive is chosen with great care, and a health officer has more responsibility than most business executives. In his scale professional qualities are given the lowest place and personal qualities, the highest. : : : : : : : : : :

"Give me health and a day and I will make the pomp of emperors ridiculous."—Ralph Waldo Emerson.

SUCCESS is the ultimate goal of every man who is worth anything. The ambitious man does not wish to write his name in water, nor leave it only on the sands where the tide ebbs and flows and effaces all things; he wishes to achieve. The attainment of success is sometimes manifested by the acquirement of wealth, of fame, or of honor. But these material things do not represent real success. The intelligent application of energy, so that production is increased, or the amelioration of adverse conditions resulting in benefits to the human existence, this is true success. Often no riches and no glory accompany this type of success, but the satisfaction of having done a thing well and of having improved the destiny of mankind is sufficient compensation.

Most health workers wish to make a success of their profession. The problem is how to do it. The answer will not be

found in the text-books, for public health literature seems to deal only with the trade and not the craftsman. The first essential in the successful administration of any kind of health work is the man at the head of it. Good laws, adequate funds, coöperation and support of the public, efficiency, all are necessary and all can be obtained if the right man is in the right place. Given the tools the man with the personality to achieve will succeed, but merely putting the same instruments into the hands of the man lacking the proper qualifications will not make him successful. It is the human element which counts.

In a private business the man holding a responsible position is chosen with the utmost care. A health official is an important executive upon whom devolves the responsibility of keeping an entire community free from disease. If as much depended upon a man in an industry as does on the efficiency of a health officer and he made good at it, he would receive a salary three times as great as does this public official The welfare of the people demands that as much caution be shown in the selection of a health officer as in the choice of an industrial manager. The time for employment of the casual medical man and the convenient layman as health officers is past. As Vergil said, "The noblest motive is the public good" and the public good requires that a person be chosen for professional and personal qualifications on a full time basis and unsullied by political influence.

In order to correlate the qualifications necessary to success in public health, herewith is submitted a rating for health officials. Score cards are used for dairies, restaurants, barber shops and other objects in the jurisdiction of the health department, and even for employees in health departments, so why not score the health officer himself? Rating of men and not things was employed in the army and is frequently used in the industrial world, especially for promotions. No claim for perfection is made for this particular rating scale; it is simply the author's opinion.

A Rating for Health Officers.

	Perfect	Minimum Allowable
I. *Personal Qualifications:*		
Executive ability	7	
Initiative and enthusiasm	5	
Tact	5	
Broad-mindedness	3	
Aggressiveness	3	
Perseverance	3	
Ambition	2	
Total	28	18
II. *Moral Qualifications:*		
Integrity	10	
Character	10	
Total	20	20
III. *Mental Qualifications:*		
Common sense	7	
Judgment	6	
Memory	2	
Literary ability	3	
Total	18	12
IV. *Physical Qualifications:*		
Health	7	
Energy	5	
Appearance	3	
Public speaking	3	
Total	18	12
V. *Professional Qualifications:*		
General education	2	
Special training in public health	4	
Experience	5	
Achievements in public health	5	
Total	16	8
Grand Total	100	70

The scale is constructed on a basis of 100 points for perfect, rather than 1,000 since the former figure allows of a fairer rating, the tendency being to over-rate

on a 1,000 point principle. Furthermore, the person rated should be required to get a certain minimum rating under each of the five divisions into which the scale is separated. For convenience these five divisions are headed personal, moral, mental, physical, and professional qualifications. Obviously, a person might be perfect on all but the moral qualifications and get a rating of 80 per cent, but he would not do, unless it was intended to utilize the health department for a reformatory.

Every person engaged in public health work should practise what he preaches. If he would protect and preserve the health of others he should look after his own and disprove the words of Carlyle, "The healthy know not of their health, but only the sick." If a health official takes an afternoon off now and then to play baseball or tennis or golf, it is no crime; the conscientious man will work ten or twelve hours during an epidemic and is always ready in an emergency. Prof. W. T. Sedgwick once said in a lecture that the first essential in physical life is health, but in all life that it is truth. The inclusion of integrity in this rating needs no comment. Character is intended to embrace such things as loyalty, fairness, self-reliance, and disposition.

Of the personal qualities executive ability is placed first. It includes organizing and administrative power. Initiative and enthusiasm are also important. Emerson wrote, "Nothing great was ever achieved without enthusiasm." Energy might well be placed among the personal qualifications; in fact the line of demarcation between the various divisions is not well defined, but it makes comparatively little difference as long as the necessary items are included somewhere.

Tact and broad-mindedness are important attributes. Although health departments should be divorced from politics, there are frequently times in the best regulated departments when influence is attempted. It is well then to remember the formula of Richelieu, which was to use persuasion to the utmost, but that failing —force. The great cardinal was a successful man as men go. If the leading politician in the district walks suavely into the health office and informs the health officer that the prosecution of Mr. A is distasteful to him and must be dropped, it is not tactful immediately to tell this gentleman to go to hell. Instead, it should be explained that Mr. A's offense is a serious one, that as soon as Mr. B, the politician, understands the facts in the case he will readily see the necessity for prosecution, that the health officer is always at the service of Mr. B to do anything in his power in the cause of public health, but that he feels compelled to push this case, and besides the Board demands it. As a rule, Mr. B will allow himself to be reasoned with and will go away with a rather decent opinion of the health officer. If he does not, then is the time to tell him that politics and public health are incompatible, or words to that effect and go and win the case by perseverance and aggressiveness. As Theodore Roosevelt said, "Don't flinch, don't foul, and hit the line hard."

As to broad-mindedness or liberality. There are two sides to every question. Fairness to all and the ability to see the other person's viewpoint are great virtues. If the health officer requires that certain diseases be reported and makes no use of the reports, throwing them into some drawer to be forgotten, he is unfair to the doctors, whose time is valuable. If Alderman C wants a few dry holes filled or a dump leveled and the health officer can exert influence on Mr. D to have some of his cinders used for this purpose,

it is a politic thing to do, even if it does take a little time and there is no direct benefit to public health involved. By looking ahead and being broad-minded, the health officer will see that when he asks for an increased appropriation for the health department, Alderman C will be one of those voting in favor of it and the cause of public health is thereby advanced.

The necessity and desirability of common sense, which is another manner of saying intelligence, is apparent without explanation. An epigram of Publius Syrius is interesting in this connection, "Good health and good sense are two of life's greatest blessings." Literary ability is not so essential, but health officers are frequently called upon to write or speak and ought to be able to do either well. Yearly reports should be written in concise, readable English. Monthly or weekly bulletins should contain something besides statistics and present an opportunity for the expression of rhetorical ability. The health officer need not write like Victor Hugo or Henry James, but he should be able to sense the relative values of a subject and then express them correctly. If this plan were followed public health literature would never contain articles which read like poorly written reports of dull routine procedure. Magazines want that which is novel, though authoritative, and which adds something to the readers' knowledge or at least makes them think.

The professional qualifications are given the lowest amount, not because they are of minor importance, but because a man who has the other qualities given in the rating is one who can acquire these attributes. A proper training is, however, generally necessary in public health. A medical degree is desirable, but except in the case of rural communities, not necessary. If a man has executive ability, common sense, energy, integrity, and a thorough knowledge of the science of public health, what difference does it make whether he is a doctor or a sanitary engineer? It is the man and not the title he carries that is important. In the cities where expert medical advice is easily obtainable the properly qualified layman makes as good a guardian of public health as does the doctor. The point is that the physician is urgently needed as a practitioner and can not be replaced as such, but that he can be as a health officer.

Other qualifications which are not mentioned in this rating scale might well be inserted in it. For instance, a man could be required to have a sense of humor, for to have that is also to possess a sense of proportion. It may be argued that such a rating as proposed is too idealistic, that it would require not a man but a superman to fulfill it. On the contrary, if applied to a number of men of different grades and classes in a comparative manner, the practicability becomes evident. Any man who could not score 70 per cent on this scale is likely to be a poor health official. The time for the dilettante in public health is past; it is the expert who is needed.



The Journal will present in its December issue Sir Arthur Newsholme's story of the Historical Development of Public Health Work in England as he presented it at New Orleans.

INFLUENZA AND PNEUMONIA.

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Chicago, Ill.

At the Chicago meeting this author spoke in the General Sessions and was asked to continue beyond the time limit. There was discussion and endorsement. It was characterized to be a treatment of the older fashion much employed by physicians during the epidemic.

IN presenting the following method of treating influenza and pneumonia, I do so with the belief that very encouraging results may be obtained from such treatment by any physician, provided, he attend to the little things that have to do with the diseases under consideration; and, further, that he endeavor to keep ever in mind the great value of personal attention to patients. During the epidemic of 1918–'19 and while with the United States Public Health Service the writer attended several hundred cases of influenza and pneumonia without a death. The usual number were pregnant women but all made a quick recovery. The doses given below are for adults.

On the first visit to the patient I give calomel, veratrum viride, and aconite. The calomel tablet should be crushed and one-fourth grain given every half hour or hour until the patient has taken as much as two to two and one-half grains. If he appear very ill I give the tablets every half hour. If he has taken another laxative besides calomel before my arrival, I give the calomel, anyway. Experience has clearly demonstrated that the better the elimination the quicker do I obtain more favorable results. After six or eight hours I give one or two heaping tablespoonfuls of epsom salts dissolved in a small amount of hot water and cooled. Until the salts act freely a good many patients may have a throbbing headache. While giving the calomel, alternate with a solution containing the following:

℞

Tr., aconiti,	M., xxx to xxxvi
Tr., veratri viridis,	dr., ii to ii *ss*
Aquæ destil., qs ad,	oz., iii

M. Sig: As directed.

Give a half teaspoonful of the above solution every half hour for from six to ten doses, the number of doses depending upon the height of the pyrexia. Following these small doses continue with teaspoonful doses every two or three hours until the fever subsides and then lengthen the interval to six or eight hours between doses. Continue the solution, however, until you are certain the fever has been checked. Be quite sure that your tinctures are made from the best fluid extracts and from no other form of those drugs. There should be little, if any, precipitate.

Even though the patient complains of severe pains, I give no anodyne in the beginning, and at no time do I give an opiate for the pain. Many pains disappear after the intestine has been thoroughly emptied by the calomel and salts. If pain persists after the bowel has been cleansed of offending material I give the following:

℞

Phenacetin,	dr., i
Quin., sulph.,	gr., xxxvi
Capsici pulv.,	gr., i *ss*
Camphoræ pulv.,	gr., ii to iv
Ext., belladonnæ pulv.,	gr., i *ss*

M. et fiat in cap., #18.

Sig: One every three hours.

In almost all cases of influenza it is advisable to give some of these capsules.

In a good many cases it is well to refill the prescription and continue the capsules until the patient is convalescing. The capsules of the second box may be given from four to six hours apart. As the patient improves I give him one every six or eight hours. At the end of six or seven days again eliminate with calomel and salts.

During the crisis in pneumonia I give a tablet containing nitroglycerin, digitalis, and strychnine, at first per mouth. Dissolve one of the tablets in a teaspoonful of good brandy to which the same quantity of sugar and water have been added. This tablet and brandy should be given every three or four hours if there be cyanosis, or if the pulse is difficult to pick up. When the prostration is extreme I give the tablet with the needle every hour or two until the patient rallies. During this time I endeavor to administer the brandy and sugar by pouring it slowly under the tongue while urging him to swallow. Shaking the patient or speaking loudly into his ear will often arouse him.

If his cough persists after three or four days have passed I give an occasional dose of the following:

℞

Codeinæ sulph.,	gr., i *ss*
Ammon., chlor.,	gr., xv
Ext., glycyrrhizæ fl.,	dr., iii
Glycerini,	oz., i
Sy., pruni Virg., qs ad,	oz., iii

M. Sig: A teaspoonful every three or four hours.

During convalescence I give:

℞

Acidi arsenosi,	gr., ¼ to ½
Sy., hypophos., comp.,	oz., iii to iv
Vini olei morrhuæ, qs ad,	oz., viii

M. Sig: One tablespoonful at meal time.

I give the above as soon as he begins to eat pretty well.

For nourishment I give hot and rich soups and broths, plenty of butter, and coffee if desired, during the first two or three days, but no milk alone. Milk has not agreed with the majority of my patients who have had influenza and pneumonia. When I am sure that the pyrexia is under control I add the juices of stewed fruits and the fruit itself to the patient's diet; and I permit small quantities of solid food to be eaten when it can be determined that the patient is getting better even though he has no desire for food. Nourishing the patient is of the greatest importance and the foods mentioned, given within reason, even during the first days, will cause no ill effects. I strongly urge him to eat.

Give the medicine and nourishment regularly during the night as well as during the day and always arouse him for it. I endeavor to give the patient nourishment several times during the twenty-four hours. His position should be changed every few hours and the head and neck kept well extended. When he perspires I make no effort to check it, but I insist upon keeping every part of his body covered except the face. Even his arms and hands should remain under cover and his back and neck should be covered when he turns to lie on one side. I do not bathe him, change his underwear, apply anything to the chest, or bother him in any manner until he is convalescing, except to arouse him for the medicine and food and change his position. I have found it better to have the air fresh at all times, but always warm. A blanket should cover him and the same blanket should be wrapped around him when he gets up for any reason. Use no sheets nor muslin gown that may chill his body. Give plenty of water.

If he be very ill I make no effort to impress him with the seriousness of his condition, nor to conceal the fact or deceive him in any manner. It is indeed strange how a patient is able to

read the doctor's thoughts through his words or facial expression; this is especially true, it seems, when the patient realizes that he is fighting pneumonia. I believe that frankness and firmness from the beginning inspires the patient with confidence in the doctor, and the patient is more easily controlled when delirium appears.

I use the common Shepard stethoscope with heavy tubing. By leaning over I avoid touching the instrument, and I hold my breath during the time I endeavor to locate sounds with it. This plan enables me to pick up many more sounds, and from a greater distance and more quickly, thus avoiding the annoyance to the patient of a long-drawn-out examination.

A few words concerning the drugs I use may not come amiss. Disregard many things found in text-books concerning the action and dosage of veratrum viride and aconite, and use them together and in the quantities I suggest. I am sure that you will be pleased and agreeably surprised at the results obtained using the two drugs combined in treating influenza and pneumonia. Calomel has always been a very valuable drug—and one much abused. My experience leads me to the belief that those persons who are nauseated the most after taking calomel really need it the most.

Let me urge you to regard any moderately severe case of influenza as a forerunner of pneumonia. Do not wait until pneumonia develops, but begin the above treatment at once. Last winter in one town of 2,000 inhabitants, during a period of four weeks, the resident physician lost nineteen cases of pneumonia, while the writer's pneumonia patients numbered only six during that same four weeks, and all recovered. This instance, together with others very similar, leads me to think that the treatment suggested above aborts many cases of pneumonia; for, it is only fair to add that, as a rule, the Government physician attended a great many more patients in a community during a given time than the local physician, and he was usually called to attend those most desperately ill.

Finally, permit me to say that I have followed almost the same line of treatment for pneumonia as herein suggested for many years with very few deaths. It is my firm belief that the combination of the two tinctures is an excellent one and one of great value. If the suggestions given in this paper be carefully followed I am certain that very pleasing results will follow and the death rate of influenza and pneumonia will be greatly lowered.

OIL SPRAYER, ANNISTON, MISS.



Another of Mr. Abele's pictures showing the type of operative and the outfit for oiling pools.

PUBLIC HEALTH WORK IN INDIA.

I.

THE CASTE SYSTEM AND THE SANITARY PROBLEM.

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Many endemic centres of communicable disease lie in the Orient and therefore the future fight of preventive medicine must be largely in Eastern countries. Mr. Jenks, with some years of experience in Hindustan as sanitary engineer, outlines racial conditions that are fundamental. They must be recognized in any plan for bettered sanitation. : : : : : : : : : : : : : :

PERHAPS the most important of all the elements that govern the character and effect of sanitary effort among the indigenous population of India is the influence of the native habits and customs. Habit is practically the sole arbiter in the lives of the people, an ingrained characteristic that finds its most far-reaching development in the caste system. To those who are in charge of public health work in India a study of the social conditions, the peculiar customs and the religious prejudices of the different Indian communities is of great importance, both as a guide in the selection of methods of procedure and as a means of enlisting the coöperation of those for whom the work is being carried on.

So many and varied are the aspects of the problem of the habits and customs of India's 350,000,000 of people in relation not only to the great question of sanitation but also in their bearing upon the activities of every-day life, that a detailed consideration of them is manifestly impossible outside the pages of a special work on the subject. Accordingly it is the purpose of this and the succeeding article to describe very briefly the outstanding features of the development of the religious scruples embodied in the caste system and the relation to health and disease of these and other practices; and to discuss in outline the nature and progress of public health work in India, with particular reference to rural and municipal sanitation and to the control of infectious diseases.

GEOGRAPHICAL DIVISIONS OF INDIA.

The main portion of India forms, roughly, a triangle separated along the base from the rest of Asia by the lofty Himalayas and bordered on the east and west sides respectively by the Bay of Bengal and the Arabian Sea. The province of Burma adjoins the northeast corner, while Ceylon lies at the southern apex. The distance east and west along the northern boundary is 1,800 miles, and from north to south the country extends 2,000 miles. The area is 1,770,000 square miles, or about 0.6 that of the United States, so that with a population estimated at 350,000,000 the average density equals 198 persons per square mile.

The most fertile and at the same time most populous part of India is the Ganges valley, extending from Bengal to the Punjab and lying between the Himalayan mountains and the great central plateau known as the Deccan. The climate of this region is characterized by extreme

heat in summer and chilliness to cold in winter, according to the latitude and distance from the sea. Near the coast, the humidity is high, decreasing materially and progressively towards the northwest. The land extends as a great, almost level plain from Calcutta to Allahabad at the junction of the Jumna and Ganges rivers, and from there on as far as Agra, where the country becomes more rolling. The water table is everywhere near the ground surface so that the open shallow well is the common source of water supply. On the individual farms and in the villages, drainage is poor, with the result that water collected during the monsoon season remains for weeks at a time in depressions or in artificial excavations known as "tanks." This water is frequently the chief source of supply for drinking purposes. It may at the same time be used for irrigation, and almost invariably serves in addition as the village bathing pool.

Towards the west coast the main topographical features are the coastal plain, the semi-arid, hilly country that separates it from the Jumna valley on the north, and the Western Ghats or mountains that form a barrier between the coast and Central India. The western slopes of these mountains form a region of high rainfall and beautiful tropical scenery.

Central and southern India comprise in the main "jungle" country of irregular topography, with few large cities. On the eastern coast, after the Eastern Ghats are passed, a hot, humid region is again encountered, these conditions being felt particularly in such ports as Madras and Calcutta.

Owing to the great size of the country, which was particularly felt at the time the earliest settlements were made in India by the invading tribes from the northwest, and as a result of the geographic and climatic differences encountered there, it was but natural that the population should, from remote times, show great diversity of habits and customs as well as of physical development. Until the introduction of railway transportation, the life of the average Indian was confined within the limits of his own village or plot of ground, except for a pilgrimage once or twice in a life-time to some sacred city in a distant part of the country.

Evolution of the Caste System.

The ancient history of India is veiled in obscurity and myth. According to the Rig-veda, the oldest book of Hindu epics, the first settlement of the Aryans in the plain of Hindustan was in what is now known as the Punjab, and the date recorded would correspond to about 4000 B. C.

The evolution of the caste system was evidently a gradual one, brought about by the necessity for division of labor as social and economic problems became more numerous and complex. From earliest times, four great divisions of the people were recognized, namely: Brahmins, Kshastrias, Vaishias and Shudras. The Brahmins are the priestly caste, including the Hindu scholars and teachers as well as those who administer the affairs of Hindu worship. The Kshastrias would be termed, in modern parlance, the "military class." The remainder of the Aryan conquerers went by the name of Vaishias and are those that are now engaged in agriculture and trade. The Hinduised non-Aryan group comprised the Shudra, or low caste. At first the caste distinction affected individuals merely, much in the same way as distinction is made between business and professional men in our own country today. Gradually, however, the idea of caste took on not only an occupational but a religious significance and, becoming hereditary, formed lines

of cleavage among families and entire communities, as the years went by.

The prominence in the Hindu's nature given to mind over matter has led to the development of an intricate ritual of



A favorite spot with Benares bathers, just below the outfall of a modern egg-shaped sewer.

worship and of household and social customs which, whatever supposed benefit they may have ever been to the spirit, have certainly not failed in the attempt on the part of the individual to discount the value of a normal, healthy bodily development. If it is true that the Hindus long ago knew the laws by which we direct our sanitary efforts today, they must have known them with amazing thoroughness, for it would appear impossible that a people ignorant of them could devise so many ways of violating them. The sanitarian is almost constrained to believe that, to the masses, the more dirt and bacteria scattered about, the more congenial are the surroundings; and if the dirt and bacteria are of a particular kind recommended by their rules of caste, the more "holy" and "sacred" the spot is. One has simply to visit some great religious center such as Benares to appreciate the truth of this statement. Along the three miles of river front, where on ordinary feast days as many as four million pilgrims bathe promiscuously in the sacred Ganges during the course of a single day, some of the most favored points for washing are immediately below sewer outfalls. Similarly, the best water for the pilgrims to take home with them in their brass lotas is not the Ganges water itself, but water obtained from a terraced excavation near the river-bank, into which water is admitted during the high stage of the river and allowed to remain in the pool until the next flood season.

Essential Characteristics of the People.

The present discussion is confined in the main to the caste system because three-fourths of the Indian population are Hindus, in whose lives the observances of caste are of predominant concern. In



In this "tank" thousands of natives bathe. The pilgrims then carry away water from the sacred pool in their water jars. The pool is replenished when the floods cause the river again to overflow its banks.

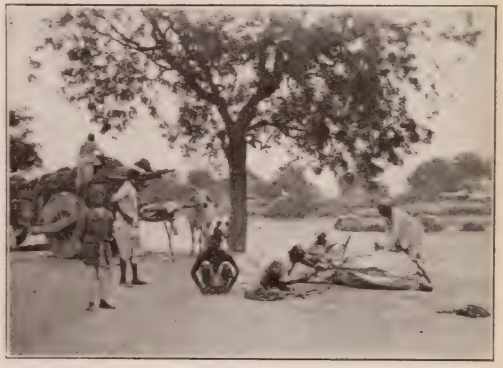
the case of the Moslem community, which comprises practically the remainder of the population, caste distinctions do not occur, but the elements in Mahomedan family and social life inimical to progress in public health work give rise to problems quite similar to those encountered in dealing with the apathy and religious susceptibilities of the Hindus.

Following out his in-born bent towards mysticism and philosophy, the Indian is by nature a religious individual, and to such an extent are the thoughts and practices of the Oriental religions interwoven with the activities of every-day life, that they have left an indelible impress upon the individual character. In perhaps no other country does the sanitarian find it necessary to take into consideration to such an extent the religious views of the people. In India it may be a decisive factor in the success or failure of his efforts. We in the United States may at times have our difficulties in meeting the attacks of those opposed to a public health measure such as vaccination. There is, however, nothing in the experience of the American health officer that corresponds to the passive resistance shown by the Hindu against inoculation on account of the animal origin of the serum, the destruction of animal life being repugnant to all good Hindus.

Important as is the bearing of the caste system and various religious practices upon the sanitary problem, still another factor of great weight must be considered also. This further element in the problem is the economic condition of the people.

India is essentially an agricultural country. Outside of three large cities, Bombay, Calcutta and Madras, with populations of approximately 1,000,000 for Bombay and Calcutta, and 500,000 for Madras; and apart from a score of cities whose population is in the neighborhood of 250,000, the great mass of the people live on farms and in scattered villages. It is, moreover, hardly an exaggeration to say that these people are engaged in a ceaseless struggle for existence. The recurrence of famines, even under the excellent systems of irrigation and transportation introduced by the British, are but a testimony to the fact that there is always a delicate balance between the needs of the individual coolie and the food supply that he is able to procure.

Under such conditions it is of no advantage to the cause of sanitation to tell the average Indian that "Public health is purchasable"; for even if interested in



In a primitive country like this, Public Health must needs be molded in simple fashion like the native crafts. Note the technique of the Hindu oxshoer.

making such a purchase, the Indian lacks the money with which to do it. Evidently, therefore, the great bulk of the sanitary work that awaits accomplishment must be done through government agencies. Until the economic status of the masses is raised, expenditures on the part of the individual for even the sanitary arrangements about the house and for such material as contributes to personal hygiene are out of the question. Until the coolie laborer can afford two blankets, he will use the cast-off blanket of a relative

who has just died of smallpox or cholera; until a sanitary privy becomes a financial possibility, education alone will not deter the Hindu from observing the code of Manu which permits defecation on the ground at a distance from the mud hut equal to the flight of an arrow. In effect, until the Indian earns enough rupees per month above those required to buy dal and rice for himself and family, he cannot afford, even though caste prejudice were removed, to cover the floor of his hut with anything but cow-dung, which he has but to obtain from an adjoining shed where the family cow is kept.

It is not to be wondered at, therefore, that, coupled with an inherent mysticism and habits of caste that expose the physical organism to the inroads of disease from every quarter, the general economic poverty of the masses should have resulted in a pronounced apathy towards all sanitary improvement, and a frame of mind tinged so deeply with fatalism. So powerful is this influence that in the days before inoculation became compulsory for plague, whole sections of a community would be almost entirely swept away rather than accept the relative immunity conferred by the serum upon other less fanatical classes. It is not uncommon to hear the story told that a Hindu, considering himself wronged by another, will simply lie down and die to spite him. However true this may be in practice, it is certain that in the treatment of patients against their will, this possibility is often weighed against the chances of death without treatment.

Elements Opposing the Caste System and Aiding Sanitary Progress.

In the foregoing paragraphs mention has been made of the chief difficulties that confront the sanitarian in his work among the heterogenous peoples of India, especially those that arise from the peculiar practices and habits of thought resulting from the observance of the caste system. It is the belief among public health workers in India that, although no immediate, widespread improvement can be hoped



Where the fakir gathers his companies of spectators, natives in all degrees of dirt and stages of negligée.

for in the country, or mofussil districts, yet in the centers of population several powerful factors are making possible better sanitary conditions.

Of these factors, perhaps that of the general introduction of western education is exerting the most potent influence. In the larger towns and cities there has already been awakened a desire for better living conditions, and the weight of this public opinion on health matters is gradually making itself felt in the surrounding districts.

The ignorance of the average Indian and his passive resistance towards any innovation which affects his habits and customs are, as might be expected, yielding to the enlightened thought and improved material surroundings introduced by European civilization. Knowledge of the world gained by the educated Hindus both in Indian colleges and through foreign travel is contributing slowly to the breaking down of caste prejudice among the influential classes. Similarly, among the people at large, nothing has served so

well towards removing the distinctions of caste as the introduction of modern means of transportation in India. Traveling by train in that country has been brought within the means of the very poorest; consequently an enormous volume of traffic is encountered on all railways in India and particularly on those that pass through any of the sacred cities of the land. The fact that the great majority of Indians now make their pilgrimages by railway has greatly increased the opportunities for the rapid spread of infectious diseases, and gives rise to new problems in the control of the great epidemics that are so frequently the sequel to a great festival. Apart from this result, however, the establishment of rapid lines of communication, promoting the intermingling of people from distant provinces, has had a most salutary effect in preparing the Indian mind to accept innovations in many other forms, including those found by sanitarians to be necessary to the furtherance of the cause of public health.

Finally, in addition to the slow process of education, the immediate and tangible benefits following the introduction of clean water supplies, drainage and sewerage systems and rat-proof bazaars, and the establishment of hospitals and public dispensaries, have claimed the attention and appreciation of the most ignorant and apathetic. It is still true that, given a city tap furnishing safe water and a contaminated well a few feet away, certain castes as the Murjadis of the Bhatia class, who are enjoined to drink water from wells alone, will refuse to draw water from the city tap—at least until the well is filled up by the health authorities—yet through the example of the more enlightened classes and by tact and infinite patience on the part of the administrative staff of the health department, the desired results may be attained. In most routine work where once coercion was needed, constant vigilance is now sufficient. It will be a long time, however, before the average Indian will of his own accord keep himself and his surroundings clean.

In concluding the present discussion it may be said that the effects of the sanitarian's work upon the peoples of India are at one and the same time his chief reason for enthusiasm and for despair. Considering the almost limitless field for his efforts and the beneficial results that appear when insanitary conditions are relieved ever so slightly, he is constrained to feel encouraged. On the other hand, it seems at times a well-nigh hopeless undertaking to attempt to make any real progress in view of the sheer magnitude of the task. Just as the time-factor is all-important in the self-purification of streams, so also will it require much time for the public health officer and sanitary engineer to instill in the minds of India's 350,000,000 of people our modern ideas of sanitation and cleanliness.



ONE REASON WHY.

Here there is shown, through the courtesy of Mr. C. A. Abele, a feces wagon at Anniston, Miss. A sharp eye can note the condition of the wheels and wagon. It is such procedure as this that the great health education forces of the country seek to remedy.

CHARACTERISTICS OF THE COLON TYPE OF BACTERIA FOUND IN FECES.

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Science does not yet differentiate between B. coli from various animal sources. Water showing fecal contamination may not have been polluted by man, and may be free from typhoid, paratyphoid, dysentery, etc. Condemnation as well as approval, therefore, should always be very carefully considered. : : : : : : : :

CONSIDERABLE attention has been given in the past few years to the bacteria of the colon group because of the importance of this group as an indicator of sewage contamination in water supplies. It was formerly supposed by most water analysts that if an organism found in water fermented lactose, did not liquefy gelatin, was decolorized by Gram's method of staining, and did not form spores, the evidence was sufficient to indicate fecal contamination.

Due largely to the work of MacConkey (1), Rogers, Clark, and Evans (2), Levine (3), Johnson (4), and others, attention has been directed to the prevalence of B. aërogenes, an organism which fulfills the above four requirements, in other sources than feces. These same workers have likewise emphasized the scarcity of this organism in various fecal materials which they have examined. The results of these investigations are well summarized by Winslow and Cohen (5), in a recent paper where they show that of 3,348 strains isolated from feces by various workers only 264, less than 8 per cent, were of the B. aërogenes type.

B. aërogenes has been very commonly found on grains, fruits, leaves, in soil and other places supposedly free from fecal contamination. Primarily because of these findings the Committee on Standard Methods of Water Analysis has included in the 1917 edition of its report other directions for separating the fecal from the non-fecal organisms than the so-called "Presumptive and Completed Tests" for B. coli. It becomes evident, then, that a study of the coli-like organisms of fecal matter may throw some additional light on the intestinal distribution of B. aërogenes as well as add to our knowledge of the different types of B. coli and their distribution in feces from different animals.

METHODS.

Feces from five different animals were used, including man, horse, sheep, rabbit, and chick. In the collection of the feces five samples of each type were used and in general from as many individual animals. The material was collected aseptically and after dilution in sterile water was plated on lactose litmus agar. From the incubated plates coli-like colonies which showed acid production were selected and from them streak cultures were made onto plain nutrient agar. In the selection of the cultures for study only short, rod-like organisms which fermented lactose with production of acid and gas were chosen. Such organisms seemed to be abundant in all feces, excepting those collected from the chick, in which case several collections had to be made before a sufficient number of cultures could be obtained. The number of cultures obtained and studied from each

kind of feces was as follows: Man, 20; horse, 23; sheep, 23; rabbit, 26; chick, 21.

To determine the characteristics of the various cultures the following tests and observations were made: Motility, spore formation, capsule formation in milk, liquefication of gelatin, reaction to Gram's stain, production of indol, reduction of nitrates, reaction in milk, methyl red and Voges-Proskauer tests, fermentation of dextrose, lactose, saccharose, inulin, mannit, and salicin, and diastasic action on potato starch. All tests were made according to the methods outlined by the Committee of the Society of American Bacteriologists (6) on the Chart for Identification of Bacterial Species in its preliminary report All tests were made in duplicate.

Results.

Motility. In the cultures from human feces all were motile as determined by the hanging drop method; from horse 17 (73.9 per cent) were motile; from sheep all were motile; from rabbit, 24 (92.3 per cent), and from chick, 16 (76.2 per cent), were motile.

Spore Formation. None of the cultures produced spores on agar when grown for three weeks.

Capsule Formation. The formation of capsules when grown in milk appeared to be variable, especially in some cultures; in carefully stained slides some of the individuals in the preparation would show a capsule very clearly while others would be without it. There were differences, also, in the thickness of capsule formed; some cultures would have a very pronounced capsule often as thick as the organism itself while others would be so thin as to require careful examination for detection. The condition last named was especially true in the cultures obtained from the chick. The following were the results: The cultures from man and horse showed no capsules; from rabbit, 100 per cent showed capsules; from sheep, 95.6 per cent, and from chick, 95.2 per cent, or all but one from each of these series were capsulated. In this connection it may be noted that Rogers, Clark, and Evans (2) report considerable variation in capsule formation in the strains isolated by them from grains.

Liquefication of Gelatin. None of the cultures liquefied gelatin.

Gram Stain. All of the cultures were gram negative.

Production of Indol. Indol was produced by all cultures.

Reduction of Nitrates. All cultures produced nitrites from nitrates and all gave a positive test with Nessler's solution for ammonia; no gas, however, was collected in the inverted vials inserted in the tubes.

Reaction in Milk. The reactions in milk were recorded under two heads,—acid production as determined by the indicator brome cresol purple and the coagulation of casein. In 48 hours all cultures had produced acid sufficient to turn milk yellow. The time involved in the coagulation of the casein was somewhat variable. In the cultures from human feces coagulation took place in all cultures in 48 hours; 21 (91.3 per cent) from horse coagulated the casein in 48 hours, the remaining two cultures in 72 hours; 16 (69.5 per cent) of the cultures from sheep produced coagulation in 48 hours, the others from 3 to 8 days; of cultures from rabbit 12 (46.1 per cent) were coagulated in 48 hours, 11 of the remainder were coagulated at the end of 7 days, while 3 did not coagulate the casein in 10 days; from the chick only 2 (9.5 per cent) coagulated in 48 hours, 2 more in 72 hours, 13 in 4 days, 3 in 5 days, and the remaining 1 in 6 days. All cultures were incubated in duplicate, the results checking in each case.

Methyl Red and Voges-Proskauer Tests. Without exception all cultures were methyl red positive and Voges-Proskauer negative, which, according to the work of Clark and Lubs (12) and of Levine (3), showed all of the cultures isolated to be B. coli. A known culture of B. aërogenes was grown and tested as a control, this giving methyl red negative and Voges-Proskauer positive.

Fermentation of Carbohydrates. (a) *Dextrose.* In all cultures acid was produced in dextrose broth; gas was produced in all but one culture, that being from the horse. The same culture produced the same results in mannit broth,—acid but no gas.

(b) *Lactose.* All cultures produced both acid and gas in lactose broth, in fact, cultures which did not produce such were discarded at the beginning.

(c) *Saccharose.* In the fermentation of this carbohydrate there was considerable variation in the different cultures; in those from human feces 6 (30 per cent) produced both gas and acid; in the cultures from horse 13 (56.6 per cent) produced acid and 10 (43.5 per cent) produced both acid and gas; in the cultures from sheep 7 (30.4 per cent) produced acid and 6 (26 per cent) produced both acid and gas; in the cultures from rabbit 22 (84.6 per cent) produced both acid and gas; in the cultures from chick only 4 (19 per cent) produced both acid and gas, —in the cultures from man, rabbit, and chick gas was produced in all cases where acid was produced. In those cultures in which acid without gas was produced the reaction for acid was distinct showing at least 0.5 per cent more acid as determined by titration than the sterile incubated broth. The cultures which produced gas were not titrated. The above results are included in Table I.

(d) *Inulin.* Not one of the cultures produced either acid or gas in inulin broth.

(e) *Mannit.* In the cultures from man, sheep, rabbit, and chick all produced both acid and gas in mannit broth. In the cultures from horse 19 (82.6 per cent) produced acid from mannit and 18 (78.2 per cent) produced both acid and gas. The test was repeated in duplicate three times with the four negative cultures but the results were always negative.

(f) *Salicin.* The fermentation of salicin was shown by the production of both acid and gas in 10 (50 per cent) cultures from man; 20 (87 per cent) from horse; 21 (91 per cent) from sheep; 26 (100 per cent) from rabbit; and 10 (47.6 per cent) from chick. These results are included in Table I. It should be noted in this connection that fermentation of salicin takes place more slowly than that of the other carbohydrates used in this investigation. Incubation for 72 hours was necessary to detect all positive cultures; this is in accord with the work of Levine (11) in his use of this carbohydrate.

Diastasic Action on Potato Starch. None of the cultures showed any reduction of starch.

Production of Pigment. No attempt was made to differentiate between the various cultures in the production of pigment since all were practically the same color when grown on agar,—translucent or whitish.

DISCUSSION AND CONCLUSIONS.

Considering the proportionate number of B. coli and B. aërogenes the results obtained in this work appear to emphasize the general conditions already found by other investigators, namely, the absence or the relatively small number of B. aërogenes in feces. Rogers, Clark, and Lubs (7) by direct plating found in human feces 46 (26 per cent) B. aërogenes out of 177 cultures; Rogers, Clark, and Evans (8) in bovine feces found only one B. aërogenes out of 150 cultures isolated; in

feces from different animals including man MacConkey (1) found 19 (5 per cent) B. aërogenes out of 368 cultures isolated; Clemesha (9) found 184 (8 per cent) out of 2,236; Ferriera, Horta, and Paredes (10) found 8 (6.8 per cent) out of 117; and Levine (11) failed to find any B. aërogenes in 117 cultures isolated from various feces.

In attempting to determine characteristics which would differentiate the organisms from different sources, the tests which showed the most marked variations in the various cultures were motility, capsule formation in milk, coagulation of casein, fermentation of saccharose, and fermentation of salicin. Table I shows the results obtained.

TABLE I.

Comparison of Various Characteristics with Source.

Source	Motility, % Positive	Capsule, % Positive	Coagulation of Casein in 48 Hours, % Positive	Fermentation of Saccharose, % Positive	Fermentation of Salicin, % Positive
Man	100	0	100	30	50
Horse	74	0	91	57	87
Sheep	100	95	70	30	91
Rabbit	92	100	46	85	100
Chick	76	95	10	30	48

Motility cannot be considered as a characteristic of much value in differentiating the organisms from different sources; there is some variation in the different percentages but this variation is not great enough to warrant drawing any conclusions.

There is a marked difference in the formation of a capsule in some of the groups. In those cultures isolated from man and horse no capsules were detected whereas, nearly all of the cultures from sheep, rabbit, and chick showed capsules. Although the formation of a capsule appears to be variable in the individual cells of the same culture, nevertheless the characteristic is suggestive as a means of separating some of the groups.

Considerable differences exist in the percentage of cultures which coagulate casein in forty-eight hours at 37° C. The amount of emphasis to be placed on this characteristic as a means of differentiation can be determined only by further work on a great many more cultures from each source.

In the fermentation of saccharose it may be noted that the cultures from man, sheep, and chick show the same percentage of positive cultures, whereas in those isolated from rabbit the percentage is nearly three times greater, those from horse nearly twice as great. Levine (11) likewise found a much higher percentage of saccharose fermenters in horse feces, 79 per cent out of 19 cultures, but he also found 95.5 per cent of fermenters in sheep feces; the marked difference in percentages in the cultures isolated from sheep as reported by Levine in comparison with those of the present work may be due to the small number of cultures tested in each case. Other workers, including MacConkey, Clemesha, Ferreira, Horta, and Paredes, and others, in determining the characteristics of B. coli from human feces, report about 32 per cent of their cultures fermenting the sugar, indicating that this is about the percentage of saccharose fermenters in the colon cultures from human feces.

In the fermentation of salicin the cultures from man and chick show about the same percentage, the cultures from horse, sheep, and rabbit show a much higher percentage of salicin fermenters; Levine (11) found 68.3 per cent of his 22 cultures from sheep fermenting salicin in comparison with 91 per cent out of 23 cultures in the present investigation.

It becomes evident that so far as our knowledge at present extends there is nothing which definitely characterizes

the B. coli from different animal feces. Water, therefore, which shows fecal contamination by bacteriological analysis may be polluted by certain animals other than man and be free from the organisms, such as typhoid, paratyphoid, dysentery, and other bacilli, which cause diseases in man. This investigation should serve to emphasize the importance of a careful sanitary survey of the water supply in addition to a bacteriological examination before water is considered dangerous for use.

Summary.

Of the 113 coli-like cultures isolated from feces including 20 from man, 23 from horse, 23 from sheep, 26 from rabbit, and 21 from chick, none were of the B. aërogenes type as determined by the methyl red and Voges-Proskauer tests.

The characteristics which showed the greatest variations among the different cultures were motility, capsule formation in milk, coagulation of casein, fermentation of saccharose, and fermentation of salicin.

Capsule formation and coagulation of casein are suggestive as characters for distinguishing between B. coli from different sources.

Water may contain B. coli from other than human feces but at present there is no means known of differentiating these organisms from different animals.

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THE SILENT ASSISTANT.



This illustration from the camera of Mr. C. A. Abele, shows one of the methods of oiling the streams. The brook is sluggish, although the size of the waterway indicates much activity at flood time. The drip can is not ornamental but it is simple and serviceable.

INFLUENZA-PNEUMONIA AS INFLUENCED BY DISH-WASHING IN THREE HUNDRED AND SEVENTY PUBLIC INSTITUTIONS.

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Colonel Cumming extends the trail he blazed in the matter of insanitary dishwashing. He finds in institutions that wash by hand in lukewarm water that there was three times the incidence of influenza-pneumonia that there was in institutions with steam dishwashing. His conclusions are based on an institution population of 252,186.

IN public eating places, institutions, hotels, restaurants, etc., there are two methods of washing eating utensils. By the handwashing method the dishes are cleansed of gross food particles, but they are not disinfected, since the water must always be of a temperature easily withstood by the dishwasher's hands. At this temperature there is no disinfectant action, and as successive batches of utensils are washed, this lukewarm water becomes highly contaminated. Our investigations show this pollution may be as high as 25,000,000 organisms per cc.

Within recent years the mechanical process of dishwashing has been adopted in the better hotels and restaurants and in many public institutions. From the manager's point of view the chief advantage is that of economy. From the sanitarian's standpoint there is the advantage that mechanical dishwashers disinfect the dishes to a degree depending on the temperature of the water and the duration of exposure of the dishes to the disinfecting action. Hitherto, this disinfection of dishes by scalding hot water has not been especially recognized as of value as a public health measure.

Even with the mechanical appliances there is a lack of standardization in their use, for temperatures as low as 50° C. were observed, while in others it was invariably at from 75° to 90° C.

Having shown in a former report that among 66,000 troops 80 per cent of the cases occurred in connection with insanitary methods of washing mess-kits,* and, in a subsequent report, that among 21,000 civilians 84 per cent of the cases occurred among those eating from handwashed dishes,† it was believed that further studies should be made with the purpose of determining the relations of dishwashing methods to the incidence of influenza in institutions composed of certain fixed groups. Such institutions furnish large permanent groups of individuals who eat from either handwashed or machine-washed dishes, while the institutions themselves are comparable in other important factors to health in their modes of life.

Questionnaires were addressed to many public institutions throughout the United States, nearly 500 replies were received, and of these 370 form the basis of this report. The replies not used included those with a very small number of cases (less than 3), and those in which obviously defective or inaccurate information was given. The institutional population on which the report is based is 252,186.

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*Lynch and Cumming: The Rôle of the Hand in the Distribution of Virus and Secondary Invaders. Military Surgeon, December, 1918.

†"Lynch and Cumming." The Distribution of Influenza by Indirect Contact and Eating Utensils. Am. Jour. Pub. H., January, 1919.

Table I presents the consolidation of replies from 115 institutions in which machinewashing is employed and in Table II similar data are given for 255 institutions practising handwashing. In connection with the last column in Table I, it is to be noticed that in less than half the institutions were there definite instructions given to use scalding water. Some replies show lack of appreciation of the needs of the occasion, one manager stating that it was the practice to disinfect all the dishes once a month, while another acknowledged that, although instructions were given to scald the dishes scalding water was never available.

In support of our contention with reference to the comparative facility with which contagion is spread by means of improperly washed dishes, Chart I shows by classes the marked differences in the incidence of influenza between institutions employing machines and those in which handwashing was the practice. The institutions represent almost every state of the Union, and all classes of inmates. It will be noted that the ratio of infection in the two groups is approximately 1 to 3, *i. e.*, 75 per cent of the cases of influenza occurred in that group eating from handwashed dishes.

There is one point to be emphasized here. There is a difference between this major avenue of transmission in the army and in civil and institutional life. In the army the mess gear is used by one man only and the avenue of infection is through contaminated mess-kit wash water. In institutional life the major avenue is through the interchange of contaminated

TABLE I.

Institutions in Which Machinewashed Eating Utensils Are Used.

	Population	Influenza Cases	Rate per M.	Average Duration in Weeks	Daily Rate of Infection	Pneumonia Cases	Pneumonia Deaths	Pneumonia Mortality per 1,000 Cases Influenza	Mortality per 1,000 Population	Number of Kitchens in Each Class of Institutions	Instructions to Use Boiling Water	
											No	Yes
Aged	3,247	156	48.05	2	3.4	9	4	25.6	1.2	13	2	2
State hospitals	42,938	4,071	94.8	6.4	2.1	793	505	124.	11.8	367	20	11
State prisons	17,917	1,621	90.7	4.6	2.8	206	110	61.3	7.4	224	8	13
Federal prisons	3,198	516	161.5	9	2.6	60	13	25.2	4.07	7	2	1
Tuberculosis sanatoria	10,204	1,324	129.7	4.5	4.1	250	158	119.	15.5	114	25	18
Feeble-minded	2,585	507	196.2	8.5	3.3	134	55	108.	21.2	27	0	2
Children	4,659	1,124	241.2	4.5	7.7	42	34	30.2	7.3	40	7	4
Total	84,748	9,319	108.9	5.1	3.05	1,194	879	94.2	10.4	792	64	51

TABLE II.

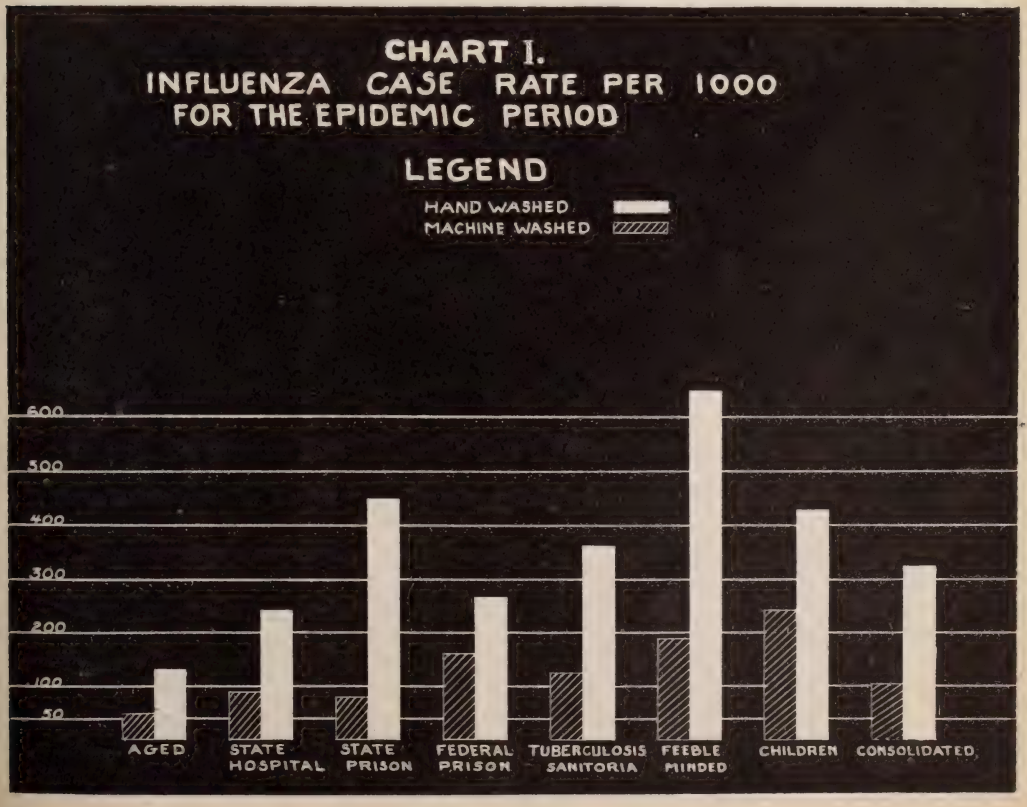
Institutions in Which Handwashed Eating Utensils Are Used.

	Population	Influenza Cases	Rate per M.	Average Duration in Weeks	Daily Rate of Infection	Pneumonia Cases	Pneumonia Deaths	Pneumonia Mortality per 1,000 Cases Influenza	Mortality per 1,000 Population	Number of Kitchens in Each Class of Institutions	Instructions to Use Boiling Water	
											No	Yes
Aged	1,503	202	134.3	4	4.8	16	14	79.5	10.6	27	1	0
State hospitals	102,614	25,036	244.0	5.6	6.2	3,768	2,288	91.4	22.3	1,200	21	69
State prisons	12,345	5,567	450.9	5.3	12.1	591	234	42.0	19.0	157	23	9
Federal prisons	5,562	1,488	267.8	6	6.4	251	97	65.1	17.4	14	2	3
Tuberculosis sanatoria	3,518	1,280	363.5	4	13.0	79	87	68.0	24.8	51	4	5
Feeble-minded	12,313	8,010	650.5	4.6	20.4	1,099	872	108	70.0	137	13	6
Children	29,583	12,814	433.1	3.2	19.3	730	237	18.5	8.01	186	59	40
Total	167,438	54,397	324.8	4.5	10.3	6,532	3,831	70.4	22.9	1,772	123	132

eating utensils. Minor avenues in the army, civil and institutional life are through inanimate objects by the hand and mouth route and to a lesser degree by direct contact. We contend that in civilian communities this sputum-borne infection is primarily a crowd messing infection in public eating places, and secondarily a home messing infection.

By blocking the major avenue of transmission, the greater percentage of cases is eliminated, namely those due to convalescents and carriers. This reduces the number of sources of infection and their resultant secondary cases. By completely closing the major avenue of transmission, there is a reduction in inanimate object contamination and the resultant hand to mouth infections.

The daily rate in the different groups is interesting as shown in Chart II. In the army camps, although the duration of the outbreak in divisional camps was about three weeks, the individual companies showed an explosive tendency, 80 per cent of the spread being effected in a period of not more than three days. In contrast to this there was the comparatively slow and gradual spread in civil communities. The epidemic extends over a period of eight to twelve weeks and is due primarily to mass infection in public eating houses, but to a less degree than among troops, for in restaurants, the eating utensils only are responsible for distribution. Among troops, both utensils and the hand are distributing agents. In institutions the rate of transmission is directly related to the interchange of contaminated utensils. In the army the daily rate of infection was approximately 18 per 1,000; in public institutions, 10 per 1,000 and in civil communities, less than 1 per 1,000. These varying rates are in the main not



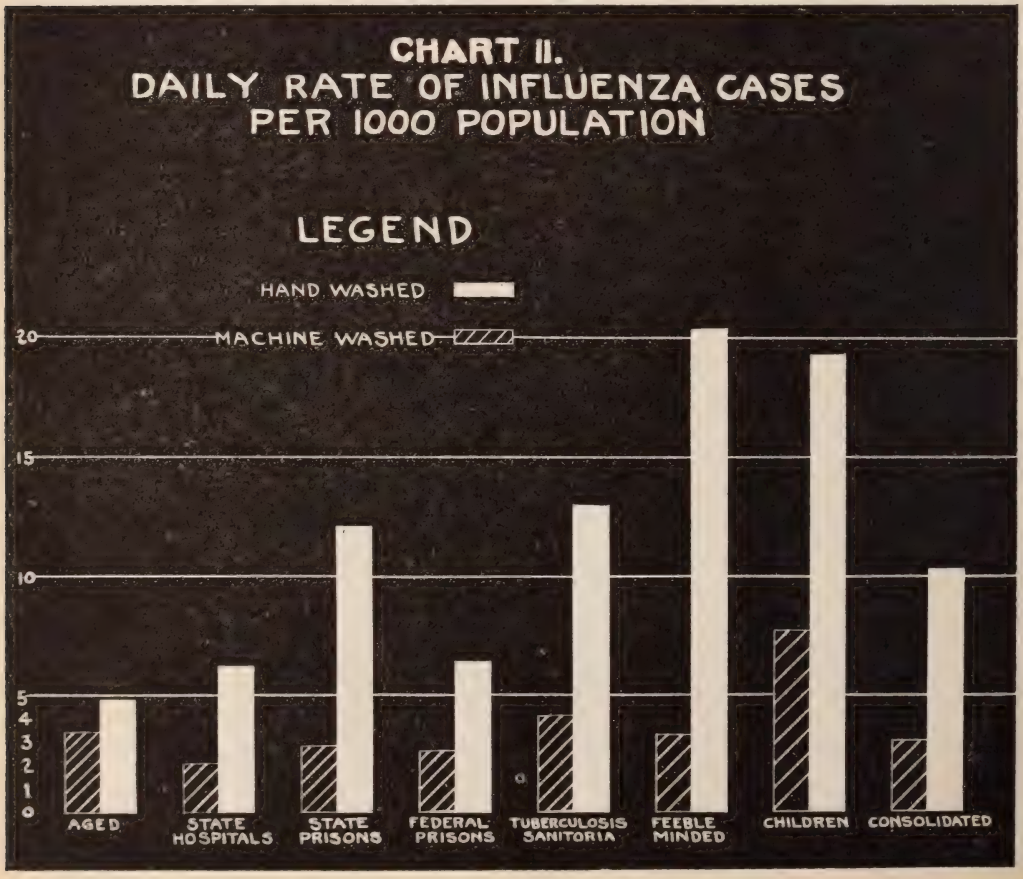
influenced by the density of population. In the first two classes the rates pertain to large fixed messing groups. On the other hand, among the civil population, while there are many public messes, they are in the main composed of innumerable small messing groups in the homes.

In Chart II the daily rate of influenza cases per 1,000 of population varies in the different classes of institutions, and in the two groups of each class according to method of washing eating utensils.

Conclusions.

The mass of material collected is too great to be presented *in extenso*, but facts and figures in hand lead to the following conclusions:

1. Transmission of the potentially dangerous group of pneumonia-producing organisms, incident to promiscuous messing in the army, in public institutions, in public eating places, and in the home, can be largely prevented by the disinfection of eating utensils with scalding water. The universal application of the principle of proper eating-utensils disinfection will reduce enormously the prevalence of all sputum-borne infections. As is shown in the institutional population, the influenza case rate was reduced by 66 per cent and the mortality by 55 per cent through the use of machinewashed dishes. It is believed that a further reduction in these rates would have occurred had the full efficiency of all mechanical dishwashers been utilized by the use of boiling water. This principle applies to public eating places, as well as to public institutions,



and with equal force to the scalding of eating utensils in the private family.

2. The pneumonia mortality rate resulting from the influenza epidemic was greater in public institutions than in the army or in civil population. This is chiefly due to the large messing groups and the lack of sanitary dishwashing.

3. In that group of institutional population protected by machinewashed dishes, the incidence of influenza was only 25 per cent of the total institutional cases.

4. The case fatality rate was higher in the protected group showing that pneumonia carriers are more susceptible than non-carriers to virus infections.

5. In the protected group there occurred but 31 per cent of the total population mortality.

6. The incidence of influenza was highest in that class composed of children, both normal and feeble-minded.

7. Although the influenza incidence was highest among children, yet the case fatality rate, as well as the population mortality rate, was lowest in the class composed of normal children, showing that in this age class there was a low pneumonia carrier rate.

8. The mortality rate corresponds to the age group, feeble-minded excluded, and depends upon the different rates of pneumonia carriers in the several age groups.

9. The mortality rate in institutions is greater than in the army, or civil population, because of prolonged exposure to pneumonia transmission incident to crowd messing, and lack of sanitation of eating utensils.

10. The fatalities being due to pneumonia and dependent upon the carrier state, there are two capital methods of prevention; first, limiting the number of carriers by blocking transmission at the common mess through the use of scalded eating utensils; second, by removal of the tonsils.

11. The sputum borne infections can be effectively controlled by blocking the major avenue of transmission. The majority of influenza cases have arisen from the interchange of sputum, through contaminated eating utensils. By the elimination of this large group of cases there results an equal elimination of inanimate object contamination as well as a blocking of the major avenue of transmission, thus reducing hand-to-mouth infection in proportion to the reduction of cases having their origin from eating utensil contamination. The distribution of infection from the secondary case is limited to only minor routes which are of slight importance.



"MAJOR" DIXON ON DUTY.



This view presented through the courtesy of Mr. C. A. Abele, shows the outfit and employee in the work of oiling the streams at Jackson, Miss.

PUBLICITY AND THE CAMPAIGN AGAINST VENEREAL DISEASE.

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No health officer can afford to ignore the educational value of publicity. But such announcements are so foreign to old-fashioned medical ideas that publicity is needed to give publicity its proper place. This author does good missionary work in outlining what publicity is doing for his specialty. : : : : : : : : : : :

IT is a famous saying, attributed by some to Emerson, by others to Hubbard, that "If a man write a better book, preach a better sermon, or make a better mousetrap than his neighbor, though he build his house in the woods the world will make a beaten path to his door." Notwithstanding this observation, it is now recognized that even the most meritorious article requires widespread publicity to reach a maximum record of sales. Even though the trap in question caught, killed and buried its quarry automatically its popular distribution would depend upon the manner in which it was press-agented.

The United States government has seen the light regarding this elementary truth of salesmanship and has applied it to an extent heretofore deemed impossible. In the course of war preparation it rubbed the magic lamp of publicity early and often with amazing results. Workers flocked to government industries, men and boys vied with each other in joining the Army and Navy or "telling it" to the Marines; war gardens sprung up in every community, and billions in Liberty Bonds were purchased by an aroused nation.

All of these activities were meritorious and all were essential if we were to do our share in winning a great war, but these facts, in themselves, would not have been sufficient. It took broadside after broadside of paid advertisements and editorial warnings, flights of airplanes and flights of oratory, tons of letters, pamphlets and posters before the nation could be brought to a complete realization of the vital issue which imperiled its very existence.

Publicity was formerly considered a more or less valuable feature in connection with the carrying on of a regulation business, formed and run for the sole purpose of making money, but only in recent years has its true value been appreciated from the standpoint of selling such intangible things as *ideas* and *attitudes*. The wonderful campaign against tuberculosis was one of the first to feature its altruistic and educational value.

When Hiram and Mary Jones were first told that rest, plenty of nourishing food and, above all, fresh air, day and night, were the most effective remedies in fighting the white plague, they openly scoffed at these "new fangled notions." Didn't they know that "Dr. Dingbat's Pulmonary Syrup" was the only thing that cured the deacon's hired man of consumption? Were they going to be deluded by "such talk" into admitting the "poisonous night air" into their sleeping quarters? Not they!

But several years of the right kind of publicity, the constant hammering home of proved truths, have convinced millions of Hirams and Marys that Trudeau and the devoted body of men who have followed him in the work, knew whereof they

spoke. The marvelous decrease in mortality due to tuberculosis,—the thousands of cases where the ravages of the disease have been arrested and the sufferer returned to a place of use in the community,—these are some of the benefits ascribed largely to broadspread publicity.

In one way the campaign against venereal disease has been placed at a great disadvantage from its very start. Other diseases, though unpleasant subjects for discussion, *have been* discussed, openly and fairly. Efforts toward eliminating them have not been handicapped by a confusion of moral and medical aspects or an attitude of pseudo-modesty. The terrible physical effects of syphilis and gonorrhea, however, have been left during the years for the consideration of the medical profession and a small group of persons engaged in social welfare work. The Japanese simian trinity of wisdom, so often seen in curio shops, modelled in metal or in wood and acting out the three admonitions,—"See no evil; speak no evil; hear no evil," aptly characterizes the age-old attitude regarding the venereal diseases and their main source of supply, commercialized prostitution.

These were the conditions under which the pioneers in the fight were compelled to labor. Organizations were obliged to depend on lectures and a small scale distribution of literature as practically the only means for reaching an uninterested public and great credit is due those early workers for driving the opening wedge. Slow but certain progress was made during the early years of the twentieth century but the past three years have witnessed an advance by leaps and bounds. The reasons for this marvelous advance are summed up in the one trite expression, "c'est la guerre."

When our army authorities were compelled to face the stern realities of the venereal problem during the days of mobilization and the newspapers of the nation realized that millions of mothers, fathers and other loved ones were becoming vitally interested in anything and everything which might affect the health and welfare of their boys, the word "venereal" began to find its place in the columns of the public prints. Disguised occasionally as "blood diseases," "social diseases," "loathesome diseases," or by other misleading designations, syphilis and gonorrhea began to receive a portion of that attention to which their prevalence and seriousness entitle them.

While the military forces, whether in camp on this side or overseas, were receiving the benefits resulting from the government's program of law enforcement, medical measures, recreation and education, our civilian communities were also hearing and learning more of this program, the "American plan," for the control and prevention of venereal diseases. While the Army was being told how and why it must keep fit to fight and fit to return home, the community was being told of its duty to provide a cleaner home for the boys to return to.

In upwards of one hundred and fifty cities and towns throughout the country red-light districts were abolished, this step aiding greatly in reducing the number of infections. The publicity given to these measures, particularly the disclosures regarding the number of prostitutes found after medical examination to be infected with syphilis, gonorrhea, or both, brought home to many localities the necessity for a continuation of repressive measures in dealing with the red-light.

"Do your bit to keep him fit" was the slogan drilled into the minds of thousands who were unable to participate actively in the war. Thousands of patriotic men and women in communities contiguous to military reservations received personal letters enclosing literature calculated to

appeal to their public spirit as well as their sense of civic pride. In other places where officials were lax and law enforcement at a low ebb committees were formed to prod these officials into activity.

An important percentage of men and women who never before had thought seriously concerning syphilis and gonorrhea, were told in straight-from-the-shoulder language the truths so familiar to physicians and social workers. They were informed of the locomotor ataxia, paresis and insanity resulting from syphilis; of the blindness in babies, the sterility, and the large number of female operations caused by gonorrhea. But, on the other side, the "joys" also had their innings. These same people were told of the wonderful advances made by the medical profession in curing these diseases. They were impressed with knowledge that the same American plan which worked so well in the Army can be applied to their own communities with like good results.

The Chamberlain-Kahn Bill appropriating $4,100,000 for fighting venereal diseases has given the campaign a great impetus. The portion of this appropriation allotted to the United States Public Health Service and, through that agency, to the individual states has enabled both national and state agencies to prepare and distribute the most helpful kind of educational literature. Though this is but one branch of the Public Health Service's activities it distributed, in conjunction with the various state boards of health, more than 14,000,000 pamphlets during the twelve months ending June 30, 1919.

It has also secured an inestimable amount of the right kind of publicity through such other sources as motion picture showings, talks in industries, framed placards in railroad stations and coaches, lectures before organizations, churches, schools, etc., and special sermons from 2,302 pulpits.

A number of the state boards of health have used paid advertising space in their newspapers with gratifying results. Local organizations have shared in the expenses in some instances and this coöperation serves the doubled purpose of making the state's appropriation cover more ground and interesting personally the members of contributing organizations such, for instance, as chambers of commerce, Rotary and Kiwanis clubs, and other local bodies working for civic betterment. When the so-called "conservative" citizens of a community open their newspapers and are confronted with a full page ad informing them that their state went "*over the top with her full quota of venereal disease,*" when, as an argument against the red-light district, they are confronted with the pertinent query, "Have you a daughter to spare?" they begin to realize that the nation-wide campaign against syphilis and gonorrhea is not some vague, intangible thing to which their local affairs are only distantly related, but a vital, pulsating movement which is closely linked to the efficiency, welfare, and health of themselves and their neighbors.

Then again, when a local clinic is established, the question usually arises in the minds of those responsible for its success or failure, "How can the facilities of this clinic be made of most value to the people at large?" And again the concensus of authoritative opinion answers, "Through publicity." That arch enemy of public health, the quack, has always depended on advertising to build up his malodorous practice. He may well be fought on the battlefield of his own choosing. A small ad inserted in the same column as that of the quack's directly above or below if possible, telling the advantages of the public clinic and warning the sufferer

against the type of treatment dispensed by the bogus medicos has proved effective in many states and municipalities. This should be supplemented by posters and cards, giving the location and hours of the clinic and a brief résumé of the symptoms of venereal diseases, posted in public places and industrial lavatories, and distributed to those men and women in need of such information.

The Army and Navy are continuing the policy inaugurated as a war measure and their medical officers are constantly endeavoring to make the anti-venereal program more comprehensive and effective throughout the service. The numerically greater civilian field is also receiving unremitting attention from authoritative sources.

Besides the United States Public Health Service, there are two other organizations aiding in the conduct of the campaign nationally. One is the United States Interdepartmental Social Hygiene Board, a governmental body; the other is the American Social Hygiene Association, a private corporation, non-profiting and supported wholly by voluntary contributions. The former, besides operating a corps of trained field agents, is engaged in stimulating research work among the schools and colleges of the country for the purpose of learning new methods for preventing and controlling the venereal diseases.

The American Social Hygiene Association, in coöperation with the two governmental agencies, is pushing the adoption of the American plan throughout the nation. Through its various departments it is aiding communities to wage up-to-date campaigns and to put into effect the law-enforcement, medical, recreational and educational features which make up the plan.

Its Department of Public Information, as the publicity department is called, is constantly at work preparing new material, pamphlets, posters, statistical data, and other "ammunition" for use in local campaigns. The main purpose of this department is to procure all possible publicity for the national campaign. In the performance of this work the needs of the ninety and nine are deemed of paramount importance and this department's material is written in non-technical language, using to a great extent the layman's psychology. John Smith does not know a primary lesion from a hole in the ground but when he is told, in simple language, of the ravages of syphilis and gonorrhea,—of the blind babies, invalid wives, and paralytic insane due to these plagues; when he is told further the symptoms of venereal diseases and that they are both preventable and curable, he will usually act upon the implications and act rationally, in the light of his newly acquired knowledge.

Only a few days ago in discussing this subject a doctor in a good sized New England city remarked, "You and many others connected with social hygiene work are too optimistic over what has been done and what you hope to accomplish. As far as I can see all you are doing is to drive more venereal disease cases to the doctors." He then mentioned the number, an astoundingly large one, of patients treated at the venereal disease clinic in his city during the preceding month.

Even taking this physician's estimate as *all* that publicity has accomplished in the fight would it not have proved a strong case for the advocates of this measure? But if this same man and the hundreds like him could but look over the mail arriving at the Association's offices* during the course of a single week,—if he and they could know of the hun-

* 105 West 40th Street, New York City.

dreds of requests from individuals and communities for "publicity to help us in preventing a return of the red light district," "publicity to aid us in obtaining a clinic," "information as to the treatment of syphilis and gonorrhea," "a set of literature for the use of an editor who wishes to help in the campaign," "suggestions for a placard to advertise our local clinic," and hundreds of other communications regarding all phases of the combat against prostitution, syphilis and gonorrhea, they would concur in that old sentiment, "The world *do* move," and credit publicity as one of the main accessories in the moving process.



VITAL STATISTICS SHOULD NOT DEVOLVE UPON THE PHYSICIAN.

We are all familiar with the inadequacy of the present methods adopted for securing reports of notifiable diseases, births, deaths, etc. While the laws in most states require that certain persons having knowledge of the same are obligated to report to the health authorities, in actual practice the vast amount of first-hand information contained in these reports is furnished by physicians. Although standard forms and methods are devised by officialdom to facilitate these reports, there is the greatest difficulty in securing completeness and the same standards of information from each of the thousand and one physicians concerned.

The purpose of securing the information is to assist the public demand that certain records of great value to the public be kept. Therefore, society in general demands these reports. Likewise society is willing to pay for the costs involved in securing the same whenever it is made plain that such is part of the public's bookkeeping. Hence right here lies the flaw in the present system. The physician who usually is unskilled in clerical and statistical matters, and who cares little to be a clerk anyway, is requested by laws laid down by the people to perform a good share of public bookkeeping "for the good of the human race," and do this gratis, and then we expect good service. As has often been pointed out, no lawyer or person in other walk of life would do the same or be expected to do the same without at least provision for compensation. Furthermore, it is improbable that any large group of society, for instance a hundred thousand physicians, can ever be trained to be clerks or inspectors and all come up to the desired standards. While it is all well enough for the physician to be the health officer of his own clientele, when the case involves the direct public welfare, the public's regularly appointed officer should officiate as far as the public is concerned. The solution would appear to lie in another direction, which is this: When the physician or other person runs across a notifiable disease, he has really performed his duty when he reaches for the nearest telephone and notifies the nearest public health official, in the same manner that a person would notify the police department of a crime or the fire department of a blaze, supplying simply the briefest identification information. Thereafter it is the business of the public health officials to investigate the "call" and secure at that time whatever information they desire in accordance with the laws and regulations of their office. The most that should be expected of the physician-notifier is that after the case is investigated, he attach his signature to the diagnosis feature of the record, which is merely to complete the evidence and can be done within a period of reasonable promptness, by calling upon him at his office or requesting him to step into the local health office once a week for the purpose. The value of such contact to public health officials and to physicians must also not be overlooked.

As soon as it becomes clear to the public that a local health officer is not well enough supported financially to hire the personnel to take care of his books or "cover his beat," and as soon as it can be made clear that the responsibility does not consist in "passing the buck" to the physician, funds will be forthcoming to meet the situation in the same manner that funds are forthcoming to provide for sufficient police or fire protection. Even where, at present, remuneration is allowed physicians-in-private-practice for doing such clerical and investigative work, it is misplaced; it should instead be given to the health office.—E. R. H.

A CRITICAL STUDY OF SOME METHODS PROPOSED FOR THE LIBERATION OF FORMALDEHYDE GAS FOR FUMIGATION PURPOSES.*

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FORMALDEHYDE disinfection is widely used and recognized as a most convenient and efficient method of fumigation. However, the rising cost of the potassium permanganate hitherto used has necessitated a search for a cheaper and more easily obtainable substance, which might be substituted for it as a means of liberating formaldehyde gas from its solution in water.

This department in 1915 recommended the substitution of sodium dichromate with the addition of sulphuric acid to the fluid,† and later advised the addition of glycerine as an anti-polymerization agent. This method‡ has proved considerably cheaper and entirely as trustworthy as the older permanganate method, both in this department and elsewhere excepting that it is necessary as we shall later show to use a greater quantity of the reagents than were originally recommended by us. Recently it has been suggested that the cost might be further decreased if calcium hypochlorite or bleaching powder were used in the place of the permanganate or dichromate. Horn§ reports successful results in over 2,000 rooms by this method.

In order to determine the value of this procedure, tests were carried out in this laboratory upon the gas liberated by pouring formaldehyde solution upon bleaching powder; to determine so far as possible:

1. The percentage of formaldehyde gas liberated.
2. The percentage of chlorine gas liberated.
3. The efficiency of this gas as a disinfectant.
4. The chemical action of this gas upon the contents of the room.
5. The comparative value of this and the older methods.

CHEMICAL DETERMINATIONS.

There are, generally speaking, two methods of determining chemically the amount of formaldehyde gas liberated by a reaction. Firstly, by withdrawing a measured amount of gas from a room during fumigation and determining the amount of formaldehyde gas in that atmosphere, and secondly, methods attempting to determine the total amount of gas liberated from a given quantity of reagents by absorption of all the gas liberated. Since the first method fails to make allowance for the fact that formaldehyde readily condenses on exposed surfaces, walls, etc. (in fact it is on these surfaces that the actual germicidal action takes place), it has seemed best to us to attempt to determine the total amount liberated rather than the amount present as a gas in the atmosphere of a room at any specific time.

METHODS OF ABSORPTION.

To determine the amount of formaldehyde liberated two methods of absorption were used.

First. A small charge of the substance to be used as a liberating agent was placed in a small receptacle suspended in a 750 cc. bottle which was connected with a series of absorption tubes containing water. The required amount of formaldehyde was then placed on the dry salt by means of a pipette through a

*Experiments conducted at the Laboratories of the Pennsylvania State Department of Health,

† Ann. Report Comm. of Health of Pa. 1915.

‡ Ann. Report Comm. of Health of Pa. 1915.

§ Horn, Am. Jour. Public Health, viii, p. 161. 1918.

small hole in the stopper of the bottle and this hole was promptly sealed with a paraffined cork. A slow current of air was then drawn through the whole apparatus for at least four and usually six hours. By that time all of the gases liberated had been swept out of the bottle into the absorption tubes as shown by the fact that no odor of formaldehyde nor of chlorine could be detected immediately upon removing the cork. There was, however, a residual amount of formaldehyde remaining in the residue which was spontaneously evolved, but only in small amounts.

It was our experience, confirming McClintic* that the use of potassium cyanide solution, which absorbs formaldehyde in the absorption tubes was rather unsatisfactory owing to a slight oxidation of the solution by the air current, and also to its volatility as it requires an after-tube of silver nitrate solution to prevent the loss of some of the potassium cyanide through the pump. However, water was found a very satisfactory medium of absorption (see McClintic). After running the air current several hours, no formaldehyde could be detected in the last tube by testing with fuchsin-aldehyde reagent, a solution of fuchsin decolorized by sulphurous acid which is a very sensitive indicator of the presence of aldehydes.

In working on a very hot summer day, we experienced low results and found on investigation that the formaldehyde at high temperatures volatilized more readily and was carried through the entire series of seven tubes, some of it being lost through the water pump. It was deemed best on hot or very warm days to surround the absorption tubes with cracked ice. This permitted a very rapid aëration and absorption without the loss of any formaldehyde.

The second method of absorption was more simple. It consisted of placing the potassium cyanide solution in a large bottle closing it with a stopper from which was suspended a small cup, placing a "charge" in that cup and then adding the formaldehyde solution from a pipette through a hole in the stopper and afterwards closing this hole with a cork.

Upon allowing this bottle to stand for three or four hours with occasional shaking, apparently complete absorption took place as evidenced by the absence of a formaldehyde odor upon opening the bottle.

In working with these methods we used such charges of material as would require 1 cc. of formaldehyde solution. In permanganate tests 0.5 gm. of the salt was used with the 1 cc. of formaldehyde. With sodium dichromate .55 gm. of the salt to 1 cc. of formaldehyde mixed with 0.1 cc. of sulphuric acid and 0.1 cc. of glycerine; the proportions previously recommended by this department. With bleaching powder we used 0.775 gm. of the powder to 1 cc. of formaldehyde, the ratio recommended by Horn.

Chemical Calculations.

In the chemical determinations we made use of the Romijn method for the determination of formaldehyde in solutions. Potassium cyanide solution is used to absorb liberated formaldehyde; the excess of potassium cyanide is precipitated by an excess of silver nitrate solution and the amount of silver nitrate thus used is determined by titration with ammonium sulphocyanate solution.

The method may be illustrated by explaining a determination of the amount of gas liberated in one of our bottle determinations. The gas liberated was absorbed in 20 cc. of N/10 KCN solution.

* McClintic, Bull. No. 27, Hygienic Lab.

This solution was then poured into an excess, 20 cc. of acidified N/10 silver nitrate solution. This was diluted in a volumetric flask to 200 cc. and the heavy precipitate removed by filtration through a dry filter into a dry flask; 100 cc. of this filtrate was then titrated to determine the excess of silver nitrate present by means of a N/10 solution of ammonium sulphocyanate, using ferric alum in the presence of nitric acid as an indicator.

The amount of formaldehyde present was then determined by the following procedure:

Multiply the amount of NH_4SCN used by 2.
Subtract result from the amount of $AgNO_3$ used = The amount of $AgNO_3$ absorbed by the KCN.
This amount of N/10 $AgNO_3$ is also the amount of N/10 KCN uniting with the $AgNO_3$.
Subtract from the total KCN to obtain amount of KCN uniting with the formaldehyde.
Multiply by 0.00297 (weight of formaldehyde equivalent to 1 cc. N/10 KCN solution) to obtain the total amount of formaldehyde present in the original solution.

In determining formaldehyde in the bleach-formalin gas which also contains chlorine it is necessary to modify the procedure. Although chlorine does not enter into combination with KCN it is absorbed by the solution so that the solution obtained after absorbing a bleach-formalin charge will contain both formaldehyde and chlorine gas. This chlorine will, of course, enter into combination with the $AgNO_3$ solution used.

Determinations on the amount of chlorine liberated were made by exposing standard silver nitrate to the fumes and then titrating the excess of $AgNO_3$. It was found that a charge of 0.775 gm. of bleach and 1 cc. of formalin liberated chlorine equivalent to 1.8 cc. of $AgNO_3$.

As controls we exposed standard $AgNO_3$ to the gas liberated by a permanganate-formalin charge and found that its titre was unchanged. Furthermore the addition of a solution of formaldehyde to a standard solution of $AgNO_3$ did not change its titre.

Therefore, in calculating results of formaldehyde-chlorine mixtures resulting from the action of 1 cc. of formalin on 0.775 gm. of bleaching powder, use the following procedure:

Multiply the amount of NH_4SCN used by 2.
Subtract from the total $AgNO_3$ to obtain the amount of $AgNO_3$ absorbed by both the KCN and the chlorine.
Subtract 1.8 cc. (the amount absorbed by the chlorine) to obtain the amount absorbed by the KCN.

and proceed as above.

Chemical Results.

Results of the two methods of absorption agreed very well indeed, but in general results by the first method were a trifle lower than results of similar determinations by the second method.

Individual determinations also checked with similar ones very well. Deviations were never beyond the limits of experimental error.

We report our results in general averages rather than entering into a great mass of detail, these averages are results of several determinations in each case and of determinations by the different methods.

Liberating agent.	*Formaldehyde liberated.*
Permanganate.....	60–62%
Dichromate.....	29–31
Bleaching powder.....	25–26

Chemical determinations of the amount of chlorine liberated as previously explained show that using 0.775 gm. of bleaching powder to 1 cc. of formalin the chlorine liberated was equivalent to 1.8 cc. of N/10 $AgNO_3$ solution, that is equivalent to .0063 gm. of chlorine gas, which is liberated together with a maximum of .260 gm. of formaldehyde. That

is about 2.3 per cent of the gas liberated from a bleach-formalin charge is chlorine gas.

Discussion.

We know of no literature bearing on the amount of formaldehyde liberated by the dichromate or bleaching powder methods, but numerous reports have been published concerning the yield with permanganate.

McClintic* reports yields averaging 37.5 per cent with permanganate, working with air drawn from a room during fumigation. It has been previously explained that formaldehyde has a strong tendency to condense on surfaces exposed to it, and therefore, it seems proper that we should obtain considerably higher results by methods that aim to measure the total amount of formaldehyde generated rather than the amount of formaldehyde gas present in the air at any particular time. This is confirmed by the results of some other investigators who have obtained results fairly concordant with our own.

Holm and Gardener† report that after a reaction of 30 minutes the amount of formaldehyde obtained from a mixture of 5 parts permanagnate to 10 parts formalin was 58 per cent and in a 7 to 10 ratio the percentage yield is 67 per cent.

They also worked with methods concerning the amount of gas present in the atmosphere of a room and report the following results:

Time after mixing.	*Formaldehyde obtained.*
10 min.	39.7%
1 hour	19.5
3 "	15.3
6 "	12.3

They refer to the work of Von Brumn‡ who obtained 16.94 per cent and who advanced the theory that the remainder was left absorbed on the sides of the room.

Frankfurter in reporting the amounts of formaldehyde liberated by mixtures of sand and permanganate gives the following table:*

Minutes of reaction.	*Formaldehyde liberated.*
80	65.96%
60	68.06
45	73.11
30	74.56
15	73.56
10	70.48

Hill,† working with a large apparatus, absorbing in water and finally washing down the sides of the receptacle, obtained from a 7 to 10 permanganate formaldehyde mixture from 62 per cent to 65 per cent formaldehyde.

The chemical action involved in the bleaching powder formalin mixture is obscure and because of a lack of time this phase of the subject could not be thoroughly investigated.

The chemical reaction involved in the bleaching powder formalin mixture is obscure and because of lack of time this phase of the subject could not be thoroughly investigated. However it should be noted that while, when working with large batches of this material a very violent reaction with considerable frothing and a marked production of heat occurs, in smaller batches the reaction is much less violent and considerably slower; so that if heat production is an important factor in accelerating liberation of formaldehyde the actual percentage of gas liberated in fumigating a room is somewhat more than the percentage determined in these experiments.

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* McClintic, Bull. No. 27, Hygenic Lab.
† Holm & Gardener, Jour. Inf. Dis., vii, p. 641. 1910.
‡ Von Brumn, Zeit. f. Hyg., xxx, 201. 1899.

* Frankfurter, Am. Pub. Health Assn., Reports xxii, 113. 1907.
† Hill, Am. Journ. Pub. Hyg., xix, 576. 1909.

Bacteriological Determinations.

In order to determine the efficiency of the bleach-formalin gas as a disinfectant experiments were carried on to test its ability to act as a germicidal agent.

A large bottle with a capacity of about $1\frac{2}{3}$ cubic feet was fitted with a stopper to which was suspended a small cup in the same manner as the smaller bottle described under the head of chemical absorption apparatus.

Test papers were prepared by soaking small strips of filter paper in broth cultures or emulsions of the organisms to be used and subsequently drying these papers in the incubator for an hour.

These papers were now suspended on strings and placed in the bottle so that they hung about two thirds of the distance from the stopper to the bottom of the bottle. A bleach "charge" was then placed in the small cup and the formalin added as before. At intervals after the beginning of the reaction the cork was lifted up and one of the strings of test papers withdrawn from the bottle, replacing the stopper as rapidly as possible. Of course small amounts of gas escaped each time, but after a little practice, it was found possible to withdraw the samples very rapidly and the method as a whole seems to be very satisfactory.

Several experiments were tried using test papers of B. Coli as an example of non-spore bearing organisms and of B. Subtilis (two month ager slants) as an example of spore bearing organisms. A table typical of all our results follows:

Capacity of bottle, 47 liters, 1.66 cu. ft.
Gms. of bleaching powder, 1.03
Cc. of formalin, 1.30

Time	B. Coli	B. Subtilis
15 min.	++	++
30 "	+	++
45 "	+	++
1 hr.	−	++
1 " 30m	−	+
2 "	−	+
2 " 30m	−	±
3 "	−	−
3 " 30m	−	−
4 "	−	−

From this we may conclude with Horn (*loc. cit.*) that the gas resulting from mixing bleaching powder with formalin is germicidal and may be used for fumigation purposes.

Of course whenever formaldehyde gas is used for fumigation care must be taken that the proper amount of moisture is present and that the temperature is not too low.

To further test the action of the gas under practical conditions a room was disinfected several times. This room had

Size of room, 1,660 cu. ft.
Bleach used, 2 lb. 5 oz.
Formalin used, 1,666 cc.

Location in room	Approximate distance from source	Height	B. Coli	B. Typhosus	Organisms		B. Diphtheriæ	B. Subtilis
					Streptococcus	Staphylococcus		
Bed	4 ft.	1 ft.	−	−	−	−	−	−
Chair	3	1	−	−	−	−	−	−
Bureau	5	4	−	−	−	−	−	+
Under bureau	5	0	−	−	−	−	−	+
Mantel	4	5	−	−	−	−	−	+
Table	3	3	−	−	−	−	−	−

a capacity of 1,660 cubic feet and was charged with 2 pounds 5 ounces of bleaching powder and $1\frac{2}{3}$ liters of formalin. Test papers of several organisms were exposed at different places in the room at various distances from the bucket in which the reaction was taking place and at various heights from the floor. The room was then tightly sealed, the reaction started and left for a time. At the end of 4 hours the room was opened and the test papers exposed in petri dishes were removed and planted in the proper media.

Results were concordant and on the whole satisfactory; all non-spore bearing organisms were killed and some of the spore bearers, but in those parts of the room furthest removed from the reaction pan, B. Subtilis spores showed growth after several days incubation.

The table at bottom of page 863 is typical.

Chemical Action on Contents of the Room.

To test the chemical action of the chlorine-formaldehyde gas mixture liberated by bleaching powder on the contents of a room, several samples of delicately colored silks and crêpe de chênes were obtained and exposed at various parts of the room. It was furthermore thought best to wet some of these samples so as to render them more susceptible to any deleterious action of the gases. It was found that all of the wet pieces were injured by the gases, losing both color and tensile strength, and that those dry samples nearest to the source of the gas were very frequently faded.

Silver and nickle articles exposed lost their polish and became heavily corroded.

Bacteriological and Chemical Action of Dichromate-Formalin Gas.

In order to have a control, samples of the same goods were treated in the same way and exposed in the same room to the action of the gas resulting from treating dichromate with formalin. In no case was any injury detected even in the wet pieces of goods. Nickle and silver articles lost none of their polish.

Bacteriological tests were made at the same time in the same manner as above. We used the proportions of dichromate and formalin hitherto used which, as we have shown, do not liberate as much formaldehyde gas as the old permanganate method; however, it does liberate more formaldehyde than was the case in the bleach-formalin table given above so that any difference in the action on the goods could not have been caused by an increased amount of formaldehyde gas but must be caused by the chlorine gas present.

As we have explained the amount of formaldehyde liberated by this amount of material is not enough in our opinion for a complete efficient disinfection as the following table shows:

Size of room, 1660 cu. ft.
Dichromate used, 17 oz.
Formalin used, 800 cc.
Sulphuric acid used, 80 cc.

Location in room	Approximate distance from source	Height	B. Coli	B. Typhosus	Streptococus	Staphylococcus	B. Diphtheriæ	B. Subtilis
Bed	4 ft.	1 ft.	−	−	−	−	−	+
Chair	3	1	−	−	−	−	−	+
Bureau	5	4	−	−	−	−	−	+
Under bureau	5	0	−	−	−	−	−	+
Mantel	4	5	−	−	−	−	−	+
Table	3	3	−	−	−	−	−	+

Summary and Conclusions.

Formaldehyde gas can be liberated from its solution for disinfection or other purposes by pouring this solution over bleaching powder, potassium permanganate, or sodium dichromate.

Chemical determinations showed the following percentages of the total gas in solution to be liberated by the various methods:

	Per cent.
Permanganate	60–62
Dichromate	29–31
Bleaching powder	25–26

In these determinations the dry salt and the commercial formalin solution were used in proportions previously recommended.

In the case of bleaching powder about 2.3 per cent of the total gas set free is chlorine gas.

Bacteriological tests showed all these methods to be efficient for fumigatian purposes, with well known limitations so to heat and moisture that must always be applied to formaldehyde as a fumigant.

In the case of bleaching powder the strongly corrosive action of the chlorine gas in the liberated gases is injurious to delicate fabrics and their colors and heavily corrodes exposed metals.

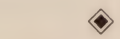
Because of this, we cannot recommend the method for general use; in special cases where such injury would not be objectionable, such as fumigating empty rooms or school rooms it would be quite efficient.

It is necessary to use approximately double the amount of dichromate-formalin previously recommended to obtain an amount of formaldehyde gas equivalent to the amount liberated by the charge of permanganate-formalin recommended.

The proper charge for 1000 cu. ft. is:

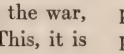
20 oz. sodium dichromate.
32 fl. oz. formalin.
3 fl. oz. sulphuric acid.
3 fl. oz. glycerine.

I desire to express my thanks and appreciation for many helpful suggestions and criticisms from Dr. J. B. Rucker, Jr., director of this laboratory.



First TB Election Ordered.—The first election in the United States to decide whether or not a county should eradicate tuberculosis from its herds of cattle has been ordered to be held in Clay County, Miss., on September 2. The election was ordered by the county board of supervisors after a petition asking for it had been presented by a group of citizens.

The results of this election will have much more than local interest, because the election may be the forerunner of hundreds or thousands of others in other sections of the country. (*J. E. L.*)



War Shows Value of Typhoid Vaccine.—Of 2,000,000 men who were sent to Europe during the war, less than 500 developed typhoid fever. This, it is believed, is due to protective inoculation against the disease. If the same rate of infection had prevailed among the American troops that existed during the Spanish-American War, there would have been 384,113 cases and 29,266 deaths from typhoid fever. During the Spanish-American War, 20,738 cases of typhoid fever developed among 107,973 men, of which 1,580 were fatal. The prevailing rate among the soldiers in the Great War was even less than that which is true for the whole registration area. If the rate for the registration area, which is true for males between 20 and 45 years, be applied to the army, there should have been 3,200 cases and 320 deaths from typhoid fever. The low incidence of typhoid fever among the troops is true in spite of the poor sanitary conditions under which many of the troops had to live. The cases that occurred were due to highly infected water supplies or carriers. Thus it seems that if the typhoid infection is heavy and continuous that a previous vaccination will not prove an effective protection against the disease. Not only is it important, therefore, to vaccinate people against typhoid, but progressive and efficient sanitation must accompany vaccination, in order to get complete protection. In this way it will be possible to make typhoid fever as uncommon as smallpox.—*N. Y. Times*, August 19, 1919. (*M. P. H.*)

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PUBLIC HEALTH IDEALS AND SUCCESSES.

The evolution of public health as summarized in the history of the American Public Health Association, presented in a paper by Dr. P. H. Bryce, before the Association in 1916, indicates not only how lowly were its beginnings and how uncertain its methods, but further shows how crude were the most advanced thoughts with regard to the origin and nature of disease fifty years ago. On the other hand, the mere perusal of the programme of the Forty-Seventh Annual Meeting of the Association exhibits in outline the development of public health as illustrated by activities in almost every field in which influences affecting vital processes, whether favorable or unfavorable, may be exercised.

One need only refer to the subjects dealt with in the programme of the general sessions, such as malaria and influenza, to the papers dealing with public health administrative details or to preventive work in the Southern states of the continent, to realize the incalculable value of the practical application of research methods to the investigation of the nature of diseases and to the methods for their prevention. If we turn to the programme of the Sociological Section we find problems dealt with which bear directly upon home life in industries, such as the effects of machinery through monotony as influencing vital forces. Those of the programme of the Section on Industrial Hygiene deal with such questions as determining the physical and mental fitness of the individual for certain types of work, or that of lighting, heating and ventilation as assuring the hygiene of the factory; or to the practical application of science in the field of engineering for the removal of nuisances and the prevention of disease through pollution of water. If we glance at the problems dealt with in the Section on Vital Statistics we can appreciate the splendid progress made in the education of the public to a consciousness of the essential value of human life and the possibility of the ever increasing amelioration of the conditions under which it "carries on."

It is natural, however, that those who have not been fortunate enough to have lived through this period of public health evolution, should not at once be able fully to appreciate the position in which they at times find themselves. They may not be pleased at meeting difficulties when having to deal with ignorance, indifference or self-interest, whether due to the officialdom under which they work or to the public which responds so slowly to efforts in its behalf. Nevertheless such individuals may be encouraged

through a study of the history of the struggle and triumphs of the pioneers in public health and thereby obtain some true sense of proportion as to the place which it bears in the community at large.

Perhaps, however, in no way can an enthusiast in public health work so well realize the advantageous position he occupies today, due to the evolution of public health methods, as by noting the decline in those acute contagious diseases against which the municipal health board was primarily organized to fight. Typhoid within the period of our review was universally endemic over the American continent. New settlements in the west, such as mining camps, were commonly even more ravaged than crowded centres of population, while in all the cities from Washington and Philadelphia to Pittsburgh and Chicago death rates of one to two per thousand were looked upon as natural events. Today many cities look upon a practical freedom from typhoid deaths as not only a possible but an actual occurrence. Similarly it can be recalled that thirty years ago the death rate from diphtheria often reached two per thousand, whereas today a quarter of this number would be looked upon as criminal. If not so striking, owing to the essential differences in the nature of the diseases, yet the decreases in deaths from tuberculosis and the maladies of infancy mark even a higher measure of public health advancement.

Further, although the industrial revolution with its development of modern means for increased production through numberless inventions has enormously increased the amenities of living, and though cities have grown enormously at the expense of rural districts, yet the resources of science seem increasingly to become adequate to deal with the ever increasing tension and high pressure incident to the thousand and one modes of life, which make up the complex civilization of great aggregations of humanity. That these modern transformations of society have not been without maleficent results during the process, no one can deny or question; but it is apparent, even with all the discordance and hysteria of the reconstruction period, that the constructive forces engaged in the conservation of human life today show no limit to their resources any more than was the case with the allies in their fight against tyranny and their efforts for human freedom. When the submarine campaign was decided upon by Germany the losses for some months thereafter were terrible and with reason Germany hoped to secure peace through the exhaustion of the allies through lack of food. But if the submarine was a marvellous invention it did not surpass the resources of science to discover through sound and ether waves their marvellous possibilities in the fight against what might well have proven the most destructive of all the engines of death.

If, moreover, such inventions were not only equalled but surpassed by the discoveries which enabled armies in the field to be kept in a condition of better health than an ordinary population in times of peace, then it is evident that with our knowledge of the means of prevention, precise methods with power to enforce them only are required in order to place the peoples of America and of the world today in a position of defence with regard to disease as unique as that whereby a defensive immunity has been established against some of the most destructive instruments of death.

CONTINUED INCREASE IN MEMBERSHIP.

The list of applicants for membership in the A. P. H. A. on pages 869 *et seq.*, numbering about 250 for the month, gives evidence of continued interest on the part of members in increasing the number of those related to the Association. That these lists are carefully scanned by the members the JOURNAL has good proof, for not infrequently there comes to it notice that an applicant in the "without sponsor" group was really proposed by Mr. X, or that if he is without sponsors, Messrs. X, Y, and Z stand ready to vouch for him. It is only fair to those who are members, however, to make note that applications appearing in this list are received on the regular cards for this purpose, sent out on the request of members, who not infrequently forget to put their signatures in the spaces reserved for the sponsors' names on the cards. If the sponsors will be careful to sign in these spaces they will have the credit for the members and the latter will be at the same time officially sponsored on the records.

ASSOCIATION NEWS

NEW OFFICERS OF THE A. P. H. A.

At the New Orleans meeting of the Association on Wednesday evening, October 29, 1919, the Board of Directors elected the following members to serve as officers of the American Public Health Association for the ensuing year:

President, W. S. Rankin, M. D., Secretary and Treasurer, State Board of Health, Raleigh, N. C.;
First Vice-President, A. J. Douglas, M. D., City Heath Department, Winnipeg, Man.;
Second Vice-President, S. L. Jepson, M. D., State Commissioner of Health, Charleston, W. Va.;
Third Vice-President, W. H. Robin, M. D., President of the Board of Health for the Parish of Orleans and the City of New Orleans, New Orleans, La.;
Treasurer, Guilford H. Sumner, M. D., State Health Commissioner, Des Moines, Iowa;
Secretary, A. W. Hedrich, C. P. H., 169 Massachusetts avenue, Boston, Mass.
California has been selected for the 1920 place of Meeting.

PRESIDENT RANKIN.

Watson Smith Rankin, M. D., Secretary and Treasurer and executive officer of the North Carolina State Board of Health, has been elected President of the American Public Health Association for the coming year.



He is a native of North Carolina, born in Mooresville, January 18, 1879, and a product of the high schools of this town and of Statesville, N. C. He began his medical studies at the North Carolina Medical College, going thence to the University of Maryland, from which he received his degree of M. D. in 1901. He followed this work with a year of post-graduate study at the Johns Hopkins Medical School.

Dr. Rankin served six months as resident physician in the University Hospital, was resident pathologist, 1903–1905, at the Wake Forest College Medical School and dean of the school from 1903 till 1909. In the year last named he was appointed State Health Officer of North Carolina which position he has occupied ever since. Immediately on appointment, Dr. Rankin came to the North, made the acquaintance of the health executives, state and municipal, and with this knowledge of what had been done, began his memorable work in North Carolina.

Dr. Rankin has been exceedingly active outside of his immediate duties, largely in connection with public health societies. He was chairman of the A. P. H. A. Section of Vital Statistics, 1912–13; member of the Council on Health and Public Instruction, A. M. A., 1913 till now; secretary of the State and Provincial Boards of Health of North America, 1914–1917; vice-president of the National Association for the Study and Prevention of Tuberculosis, 1916–1917; chairman of the Section on Preventive Medicine, A. M. A. 1917–1918; vice-president of the National Association for the Study and Prevention of Infant Mortality, 1917–1918; president of the Conference of State and Provincial Boards of Health of North America, 1918–1919; member of the Executive Committee of the same, 1919; and chairman of the Committee on Rural Health of the National Country Life Conference, 1918–1919.

Dr. Rankin's energy and directive skill assure the continued advance of the A. P. H. A. along its chosen lines of work, which at the present moment are of greatest importance to all the peoples of the world.

LIST OF NEW MEMBERS

PROPOSED FOR ELECTION TO THE

A. P. H. A.

FROM SEPTEMBER 23, TO OCTOBER 18, 1919.

Sponsors —and—	The New Members Whom They Introduced
(States arranged in alphabetical order)	
GEORGE H. HAZLEHURST, Montgomery, Ala.	C. L. MURPHREE, M. D., Health Officer, Gadsden, Ala.
E. W. EDAHL, Montgomery, Ala.	MISS GRACE C. ARMSTRONG, Bacteriologist, Chicago, Ill.
MISS BERTHA M. CHALLIS, Pasadena, Cal.	WINIFRED D. MERRIHEW, R. N., Public Health Nurse, Pasadena, Cal.
GUY ROBERT JONES, Sacramento, Cal.	EDWARD GWYN SHEIBLEY, Sanitary Engineer, Riverside, Cal.
W. H. KELLOGG, M. D., Sacramento, Cal.	FRED LACKENBACH, San Francisco, Cal.
MISS OLIVE CHAPMAN, Denver, Col.	EMMA LONG, R. N., Community Nurse, Pueblo, Col.
DR. T. E. LEEKS, Hartford, Conn.	RUSSELL W. LOWE, M. D., Health Officer, Ridgefield, Conn.
A. AGRAMONTE, Havana, Cuba	EMILIO MARTINEZ, M. D., Health Officer, Havana, Cuba
OLIVE A. CHAPMAN, Denver, Col.	B. MAE STREITWALTER, R. N., Student, Urbana, Ill.
R. C. WILLIAMS, M. D., Washington, D. C.	GRANT W. SILL, M. D., Health Officer, Chicago, Ill.
SURGEON-GEN. RUPERT BLUE, Washington, D. C.	HAMILTON POLK JONES, M. D., New Orleans, La.
B. L. ARMS, M. D., Jacksonville, Fla.	CHARLES A. MOHR, M. D., Health Officer, Mobile, Ala.
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COMMITTEE REPORTS.

INFLUENZA EPIDEMIC.

The Subcommittee on Pathometry, Committee on Statistical Study of the Influenza Epidemic, met at Columbia University, September 19, 1919, Professor Charles C. Grove in the chair. The chairman in noting that data suitable for study would soon be available, stated that there were a number of basic questions to dispose of before attempting elaborate mathematical studies. The questions are set forth below, together with the concensus of opinion.

I. Can any mathematical function rationally express the epidemic process (a) chronologically, (b) as to age incidence, (c) in relation to epidemic and endemic occurrences of diseases known as "influenza" and "pneumonia" in past years, for a particular community?

The first conclusion of the Subcommittee was that no mathematical function, simple in nature and, therefore, practicable, could probably be found at present to express analytically the "law" of this epidemic. The use of the Pearsonian Type IV equation, and the equations of other frequency curves in the Pearsonian system, seemed to the Subcommittee to be undesirable so far as stating the quantitative characteristics of this epidemic are concerned. The law of an epidemic may be represented, the Subcommittee believed, only by an analytic expression which took into account the extremely complicated cross-play of factors involved, and not by an equation representing the random distribution of the sizes of things. The Subcommittee seemed to doubt very much whether any analytic expression could be found to express the "law" of any epidemic. Some light may be shed upon the higher analytics of this epidemic if epidemiologists and pathologic and sanitary bacteriologists will stipulate which of the many factors in the epidemic process are supremely important. By confining attention to a very few factors, an analytic expression for the "law" of an epidemic may be found, but as to this, the Subcommittee has nothing definite to offer.

II. Shall the pandemic explosion of 1918 be studied in relation to the course of acute respiratory disease since the preceding worldwide extension of the disease known as "influenza?"

The Subcommittee had before it the proposal that perhaps the undulations, seasonal and otherwise, of the curve for acute respiratory disease since

the pandemic of 1889–1891, could be represented by a harmonic analytic function; that the experience of the autumn and winter of 1918 and the early part of 1919, was but the latest of a long series of waves, the c ose of a cycle of respiratory disease mortality. Although the representation of thirty years of respiratory disease mortality by means of a Fourier series seemed possible, the Subcommittee thought that such representation alone, without sound support for the proposal from clinicians and epidemiologists, would be a misapplication of the statistical method. The Subcommittee urged that the crude facts for the present pandemic period be studied intensively in relation to the mortality from acute respiratory disease during the thirty-year interval separating the two pandemics. Such study might provide the basis for an analytic expression representing a cycle of respiratory disease mortality. The conception that the invasion of 1918–1919 was not an isolated, explosive phenomenon, but was part of a chain of events leading back thirty years or more was held to be worthy of further discussion. The epidemiologists are asked to say whether they believe further analysis of the 1918 pandemic data from this angle seems justified. A full display of the earlier statistics so far as possible by month, and by sex and age seemed to be desirable. The Subcommittee wishes to be advised by clinicians as to whether the 1918 pandemic was a distinctively different disease from that known as "influenza" in past years, or not.

III. On "norms" of influenza-pneumonia mortality and morbidity.

In the lack of any definite information that the symptom-complex known as influenza, and the associated pneumonias, indentified in the 1918 pandemic are the same diseases as those known by the same names in past years, the Subcommittee felt that it could offer no suggestion as to a "norm" of mortality or morbidity which would have a sound philosophic basis. In order to arrive at an approximate idea of the number of "excess" deaths due to the morbific influence of the new (?) disease, some attempt should be made to estimate the "expected" number of endemic so-called influenza-pneumonia deaths. An absolutely satisfactory solution of this problem was deemed to be impossible because of the clinical, nosologic and other difficulties involved. The Subcommittee approved tentatively the idea that an "endemic" figure be computed from the mean annual death rate for influenza-pneumonia of as many years preceding the pandemic as practicable and properly classed according to the month and week in the calendar year, by race, sex, age and other particulars where the data are accessible. The material used as a "norm" will depend upon the amount of detail available in historical statistical records.

IV. On the disease data to be investigated.

The Subcommittee considered the kinds of data to be investigated analytically. It believed that the case-fatality of the disease had varied enormously from one community to another, and that it would be necessary to have accurate morbidity statistics of influenza and of its complications before the mortality problem of the disease could be understood.

V. On a study of causal relationships in influenza.

The Subcommittee wishes to caution all research students in the use of statistical devices ordinarily employed to assist in arriving at conclusions of causal relation between one phenomenon and another. It was agreed that the theory of correlation is at the present time in an unfinished condition and that any results of correlation studies be considered only as suggestions for intensive work on the part of clinicians and pathologic and sanitary bacteriologists. The correlation method in the statistics of influenza would, it seemed to the Subcommittee, be economical of research effort, because it can direct attention to the matters which it is most vital to investigate.

Because of the multitude of factors involved in the pandemic (not all of which are of the same weight, however), the method of multiple correlation was recommended as the one most likely to prove useful. A discussion of what factors the statistical analyst ought to be prepared to deal with followed. It was shown that in any phenomenon of infectious disease there were three basic elements: (1) the invading organism or group of organisms, (2) the host, or population receiving the attack, and (3) the external environment of both invader and host. The principal facts which the analyst must bear in mind with respect to the invader are as follows:

(a) the size of the dose of infection
(b) the frequency with which the dose or doses are brought in contact with the host
(c) tendency of the invader to specific localization
(d) infectivity of the organism or organisms (power to produce sickness)
(e) virulence (power to produce death)
(f) activity of invader in the presence of existing bacterial flora

The characteristics of the host to be considered are related below:

(a) Opportunity for receiving dose of infective material: Density of population; transport systems; public assembly; other channels of communication between the infected and the uninfected.

(b) Natural and acquired immunity to invasion and multiplication of organism or organisms, and to poisons produced by the invader.

(c) Resistance factors: Nutrition, general physical condition, fatigue status, hygiene of environment, existence of definite bodily and mental states (injuries, effects of other diseases, and intoxications, etc.), personal habits, medical and nursing care of those infected.

The third factor is the external environment of both the invader and the host. Temperature and humidity, separately and when acting together, and changes in the same, may be expected to have some influence upon infectious disease and especially upon respiratory and influenzal disease. By the ordinary methods of graphically associating weather and influenza-pneumonia data no very clear idea can be formed of the relation between these two elements. Students of this phase of the causal relation problem are urged to employ proper methods of measuring the combined effects of temperature and humidity, and of variations in the same. It is possible also that only accumulations of excess or deficiency of temperature and humidity from an "optimum" or "norm" will show correlation with influenza. Some of the points to bear in mind in these correlation studies of weather and influenza data are, it seems to the Subcommittee:

(a) Explosiveness of "epidemicity" of the epidemic

(b) Time distribution

(c) Aggregate of epidemic damage regardless of explosiveness or time distribution

(d) Infectivity of the organism at various stages of the epidemic wave

(e) Virulence of the organism at various stages of the epidemic wave

As to the effect of weather conditions upon the case-fatality of the disease, the Committee recommended that, wherever possible, mention be made upon case records of current weather conditions, and that such case-records be studied in relation to the various weather elements and variations in the same.

VI. On the nature of research studies in influenza statistics.

The Subcommittee wished to urge through its resolution that the inductive studies discussed in these notes be supplemented by deductive inquiries. Rigorous analysis, applied to reasonable hypotheses of the epidemic process, and referred from time to time to empirical facts may lead to results of value.

For the use of analysts, the following bibliography is given:

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Committee on Statistical Study
of the Influenza Epidemic.

REPORT OF THE COMMITTEE ON SEWERAGE AND SEWAGE DISPOSAL, SANITARY ENGINEERING SECTION.

Presented at the meeting of the American Public Health Association at New Orleans, La., October 27–30, 1919.

IT is well known to those who have spent much time in our rural districts that the vast majority of families retain in use the antiquated privy with its menace of typhoid by the contamination of wells and springs, and through the agency of flies; the possible transfer of the hookworm, tapeworm and other parasites by contact through the soil and vegetable life, and with its attendant obnoxious odors.

It is true that among the better class of farmers these conditions are being ameliorated and in many cases really modern and sanitary methods have superseded the objectionable privy; but rural communities as a whole are conservative and progress in such matters is slow.

For instance, it was found upon an inspection by the United States Health Service in 72 towns of populations varying from 500 to 20,000 located in 15 representative counties of 13 different states, but one was "free from grossly insanitary privies." In Connecticut "of the 15 to 20 analyses of wells received in this office (of the State Department of Health) each week, practically 95 per cent show evidence of contamination." In Indiana 60 per cent of the shallow wells have been found impure, and in Wisconsin, which is certainly not a retrograde state in regard to sanitary matters, it has been found that from 30 to 40 per cent of the water supplies on farms contain B. coli, indicating contamination by barnyard drainage.

For this reason the committee has taken *Rural Sanitation as applied to the Collection and Disposal of Nightsoil, Sewage and Garbage* as a fit and timely subject for report. A further reason for its selection lies in the fact that, while there is much valuable literature on the subject, particularly in the bulletins of boards of health, the information remains scattered, unrelated and unstandardized.

It is hoped that by presenting a few typical and inexpensive methods to be followed and devices to be recommended for the disposal of rural wastes from a limited number of individuals and under ordinary conditions, this report may serve a useful purpose as a guide to the householder, physician and local health officer.

The object to be obtained and the methods to be employed may be categorically outlined as follows:

Object.

To collect and dispose of nightsoil, sewage and garbage in rural communities:

(a) Without danger to health by
- Contamination of the soil;
- Contamination of vegetables;
- Contamination of water or ice supplies;
- Direct contact;
- Indirect contact (flies, mosquitoes, vermin).

(b) Without the dissemination of offensive or disagreeable odors.

(c) Without offense to sight by
- Lack of privacy;
- Exposure of dejecta;
- Day removal of nightsoil near habitations.

(d) Without breeding or attracting undesirable insects or vermin.

(e) With the maximum of convenience and comfort.

(f) Without unnecessary expense—
- First cost may often be reduced by obtaining expert advice.
- Operating costs may be kept down by providing efficient supervision (effect of frost, repairs, utilization as fertilizer).

Methods.

1. Disposal of nightsoil or dry disposal
   - (a) The straddle trench
   - (b) The pit privy
     - Movable or temporary
     - Fixed or permanent
   - (c) The receptacle (pail, tub or box) privy
   - (d) The chemical closet
2. Disposal of sewage or wet disposal
   - (a) The cesspool. No outlet provided
     - Pervious
     - Impervious
   - (b) The tank. Outlet provided
     - Plain settling
     - Septic
     - Imhoff

     Followed by
     - Dilution
     - Surface irrigation
     - Subsurface irrigation
     - Sand filtration
     - Trickling filters
     - Contact beds

     and sometimes also by disinfection
   - (c) The soakage or absorption pit for
     - Urine
     - Slops

3. Disposal of garbage
   (a) By filling in land
   (b) By burial
   (c) By use as fertilizer on the land
   (d) By burning
   (e) By reduction for recovery of grease and tankage
   (f) By feeding to hogs
4. Disposal of manure
   (a) By burning
   (b) As fertilizer
   With prevention of flies during storage

With protection from flies or direct contact with excrement provided, there are few methods of disposal in general use that may not be employed under special conditions as to remoteness from habitations, water supplies or cultivated land. Much depends on the climate, the character of the soil and the reliability of maintenance obtainable. General principles remain the same for all, but the application may differ widely between an isolated construction camp, a farm, a military cantonment and the outskirts of a village, and the cost demanded in the last instance would in no wise be justified in the first.

It has not been possible within the scope of the report to go into detail regarding special provisions for camps, schools, fair grounds or communities involving more than a few individuals but the general principles remain the same as for the individual house.

Dry Disposal.

Disposal on the surface of the soil is inadmissible from every point of view, inviting transmission of disease germs by accidental contact, through flies, mosquitoes, rats or domestic animals, farm produce and water supplies. There is also the danger of transmitting hookworms where these are indigenous, besides being an offense to sight, smell and the sense of decency.

The Straddle Trench is the most primitive form of sanitary provision, and is adapted only to such situations as are found in lumber camps, with mobile troops, etc., remote from habitations. The trench is about twelve inches in both depth and width and of the necessary length. The earth removed is banked on each side, serving as a rest for the feet. After use the excreta should be at once covered with earth several inches in depth.

A more desirable device, but suitable only for secluded locations consists of a cheap and simple *Box Seat* which may be placed over a pit without any superstructure and moved as occasion requires. The box should be fly-tight and the lid self-closing, in which case the strictly sanitary requirements may be met provided care is exercised in selecting the location.

The Pit Privy is the simplest arrangement that meets the requirements of sanitation and privacy. If improperly built or located it is a serious menace to health, especially on account of the transmission of pathogenic bacteria by flies, animals and water used for household purposes. If permitted to overflow during storms and contaminate the surface of the ground, the danger is greatly increased. These objections may be overcome by providing:

A pit of proper depth and capacity.

A tight superstructure so designed as to prevent the passage of flies to or from the pit.

A floor above the ground level.

A door and lids to the seats that close when not in use.

Durable screens over all openings for ventilation.

If the pit privy is for use in farms, camps, hunting lodges, etc., far from other dwellings and sources of water supply, the pit may be left pervious, and, when necessary, the superstructure moved to a new location, a pit for which has been prepared in advance.

The pervious pit should never be used in villages or where the contamination of wells or other water supplies is possible. In that case the pit or vault should be given an impervious lining. The structure then becomes more fixed and permanent in character. By constructing the vault in two compartments they may be used alternately for several months. While resting in a ventilated chamber the contents diminish in volume and become easier and less offensive to handle, especially if a little dry earth or, better, lime has been added each time the privy is used.

In general, other wastes than excreta should be excluded from the pits or vaults or privies. If the vault contains much dilute liquid, cleaning is expensive and in warm weather mosquitoes may breed. This may be prevented by adding a cupful of petroleum to the contents every week or two.

By providing a removable box seat the pits of latrines or privies may be burned out at least three times a week, using a gallon of crude oil to fifteen pounds of hay or straw. Otherwise it may be sprayed with a mixture of one pound of lampblack to two gallons of kerosene or one pound of bone-black to three gallons of crude oil.

Screens should be durable, of from 14 to 18 meshes per inch. If painted light-blue they repel flies and are difficult to see through from the outside.

The Receptacle Privy, in which a can, pail, box or tray is substituted for a pit or vault, has an advantage in the possibility of placing it indoors if an outhouse is not available, and in the prompt removal of wastes and constant supervision which are then essential. On the other hand, for this very reason,

it is less fool-proof than the well-built pit privy and so should be used only when someone can be responsible for its regular care.

The receptacle has a capacity preferably of about two cubic feet. It should be removed at least once a week in warm weather, or when about two-thirds full, and be replaced by a clean receptacle with an inch or so of sawdust or dry earth in the bottom. It may be handled from inside or from the rear of the privy house, and, in order to prevent the access of flies, it should fit tight directly under the seat, to which position it should be directed by guide strips nailed to the floor.

The use of any but thin paper should be avoided and after use the contents should be sprinkled with lime, ashes or dry earth kept in a box or pail convenient for the purpose. The precautions for ventilation, screening, etc., and, if out of doors, the construction of the superstructure are the same as for the pit privy.

To avoid odor the receptacle should be washed when emptied with a 10 per cent solution of cresol and the outside, if of metal, scoured with sand and paraffin.

In military camps or where used by careless persons the seats should be scrubbed daily with soap and water and at least twice a week with a solution of one and one-half ounces of cresol in a gallon of water.

The necessity of providing for the accession of farm hands during the harvesting, berry-picking and canning season is important on account of its bearing on the possible contamination of food supplies. For such situations a receptacle consisting of a long trough which can be inserted under several seats and withdrawn for cleaning may be substituted for the ordinary can.

If the contents of the cans become frozen so as to render emptying difficult, they may be immersed in warm water a few minutes, when they are readily emptied. Otherwise a surplus number of cans should be provided so that when filled they may be stored until thawed out.

The out-door privy should be inconspicuous. A trellis or a few shrubs before the door will secure this end and improve the general appearance of the place as well.

The Chemical Closet is a receptacle privy in which the contents of the receptacle are largely liquefied and sterilized by a strong caustic solution, such as a solution of sodium or potassium hydroxide.

If properly designed and cared for and with proper chemicals it may be placed in any convenient place in the house or elsewhere and therefore, need never be exposed, inaccessible or uncomfortable. Danger of soil pollution or other means of disseminating disease is greatly reduced and it is easily ventilated and cleaned. On the other hand, it requires the attention demanded of any receptacle privy and, in addition, the proper selection and use of the chemical. Where such attention is assured, the chemical closet is well adapted to the use of invalids, schools, institutions and resorts that have no facilities for sewerage.

The final disposal of nightsoil is quite as important as its collection. It should not be accessible to insects, vermin, barnyard fowl or stock, or be liable to come in contact with the human person during or after removal. It should, therefore, never be placed on the surface of the ground.

Where receptacles are used by villages or cantonments removal should be done under some central authority and during transit the nightsoil should be kept under cover.

If a sewerage system is within reach the best plan is to dump the nightsoil into one of the sewers. Otherwise, burial in the ground is usually the simplest and best method. This is sometimes done by plowing a furrow, distributing the material in it and plowing under, but as there is too great a likelihood of imperfect covering in this way it is recommended that this be done by hand.

A preferable method is to dig a trench from 9 to 18 inches deep (24 inches in winter), place the nightsoil in this to a depth of from 2 to 4 inches and backfill at once with at least 4 inches of earth. The bacteria indigenous to the soil at this depth will effectually dispose of the material without offense. This method should be carried out in some well drained sunny field which will not be put under cultivation within six months (twelve months in regions where the hookworm prevails). Such a field should not drain toward a well, spring or other source of water supply. It should be at least 300 feet therefrom or from any dwelling. No hogs, cattle or poultry should have access to land devoted to this purpose. In this way 3,600 cubic feet of nightsoil may ordinarily be disposed of per acre of ground.

Another method of disposal for nightsoil is by incineration with rubbish; or it may be utilized as a fertilizer, preferably first allowing it to rot for a year. These methods cannot be recommended, however, on account of the danger of odor and flies.

To deodorize privies, milk of lime should be added to their contents once a week, but for the *disinfection of nightsoil* a solution of one pound of chloride of lime in five to eight gallons of water, or a 3 to 5 per cent solution of cresol, will be found more effective, using from three-fourths to one gallon per cubic foot of nightsoil.

To prevent the breeding of flies the nightsoil should

be sprinkled with powdered borax or, better, a solution of one pound of borax to a gallon of water for every 10 cublic feet of nightsoil, applied once very 10 days.

No privy should be located within 20 feet of a house; within 50 feet of sleeping or eating quarters in a camp or cantonment; within 50 feet of a stream; or, if leaching into the soil is possible, within 200 feet of any body of water that may be used for household purposes, or upon land draining directly toward a well, spring or stream thus used.

Wet Disposal.

The Cesspool is, in effect, a deep pit privy with a pervious lining. If impervious it is practically a crude form of septic tank and there appears no good reason why a well-designed tank should not be preferred in every case.

Cesspools are usually from 7 to 12 or more feet in depth and the minimum capacity may be placed at about 80 cubic feet. They permit gross pollution of the subsoil and so should be only used in remote regions and where the water supply is brought from a higher level and from a considerable distance, depending on the formation. They should not be used where the ground water stands within 10 feet of the surface, or where, as in limestone regions, natural underground channels may exist.

As with the pit privy, surface water should be rigidly excluded, the structure made entirely fly-proof, and the same methods should be applied for disinfection.

The cesspool should be cleaned when filled to within not less than 2 feet of the top. This may be accomplished pneumatically by employing a portable "odorless excavator" which conveys the material to the nearest sewer or to a field for irrigation, but to avoid handling large volumes of liquid that fail to leach into the ground this may be permitted to overflow to a line of subsoil distribution tile or to a specially prepared bed of gravel or cinders, from which it will gradually soak into the surrounding soil.

If used as a fertilizer by irrigating the land this should only be done in dry sunny weather, on pervious land located at a distance of at least a quarter of a mile from any dwelling and on which only trees, shrubs, grain or root crops are cultivated, and where these are not to be harvested within a month.

The Septic tank is the type of tank generally to be recommended for isolated houses having a public water supply and a soil favorable for subsoil irrigation for the effluent. Otherwise resort must be had to some form of dry disposal.

For single houses the capacity, including space for sludge, should equal the volume of sewage to be received in about 36 hours, or say 10 cubic feet for each person.

No surface or roof water should be admitted.

To maintain a favorable temperature in the winter the surface of the sewage in the tank should, if possible, be below the frost line.

The tank may consist of two chambers or of a single chamber with baffles, and for small installations it should be covered. Hopper bottoms with sludge outlet pipes facilitate the collection and removal of sludge but usually add to the cost.

Inlet and outlet pipes should terminate from 12 to 24 inches below the surface of the sewage.

Gas vents should be provided.

Only thin toilet paper should be used.

No disinfectant should be employed, but a thin film of oil may be kept on the surface to prevent odor and the breeding of mosquitoes.

The tank should be cleaned annually.

To promote bacterial activity a few pints of sludge from a neighboring tank or a little stable manure should be placed in the tank when first used.

The Imhoff tank is to be preferred to the septic tank for larger installations, such as institutions, hotels, etc., as there is less liability to offense in the disposal of the sludge. The period of retention should be from 5 to 20 hours, depending on the number of persons served. In other respects the rules given for septic tanks only apply.

The effluent from either type of tank may pass to a body of water that is not used for drinking purposes if conditions for dilution are otherwise favorable, but in most cases it should be first oxidized in some other way.

If it is desired to effect a greater degree of purification than the mere removal of suspended solids, the tank effluent should be subjected to one of the following "oxidizing" processes.

Trickling filters and contact beds are adapted in particular to large installations where the services of an expert are required both in the design and operation.

A special design suitable for use by from 6 to 120 individuals has been recently prepared by the United States Public Health Service, consisting of a grease trap, Imhoff tank, screen, tipping distributer, a lath filter from 3½ to 6 feet deep having a volume of 8 cubic feet per capita and a secondary Imhoff tank. The whole device is made of wood and for 10 persons is only 13 feet by 5 feet 10 inches by 11 feet 0 inches high. "The degree of purification effected is sufficient for all purposes except where the discharge is directly into a water supply. In such a case chemical disinfection of the effluent is recommended in addition. . . . The plant will operate without a nuisance, and, with a monthly

inspection and semiannual or annual removal of sludge from the tanks, will operate continuously without further attention." (Reprint No. 504, Public Health Reports, 1919.) Such a plant should be protected from the weather, particularly in cold climates, and its life would be much shorter than if built of masonry.

Another compact device consists of a tank followed by a fine copper screen or sand filter and then a filter of gravel or pebbles through which air is permitted to rise.

Surface irrigation, unless under expert supervision, is not recommended, as offering too many opportunities for the production of odors and mosquitoes and for infection through flies.

Subsurface irrigation by lines of open joint tile laid from 8 to 15 inches below the surface may be the best method to employ provided the soil is not water-soaked or too impervious. The former difficulty is sometimes overcome by embedding the tile in a light fill of sandy soil. The irrigated area should be at least 150 feet from any habitation.

To prevent clogging the soil the sewage should pass through a grease trap at the house and to promote aëration in the soil it should be delivered intermittently from 3 to 6 times a day (somewhat less if the soil is dense) by a siphon contained in a dosing chamber after leaving the tank. This device may usually be omitted, however, where the house is only occupied during the summer.

The tile should generally be 3 or 4 inches in diameter, laid with a piece of tar paper over the joint and with a gradient of from 2 to 6 inches per 100 feet. The length depends upon the volume of sewage and the character of the soil, varying from 50 to 100 feet for an ordinary family. Where more than 100 feet is required in all it is generally desirable to lay two or more lines of tile. The arrangement may vary with the topography but parallel lines should be more than 6, and preferably 10 feet apart. Unless the soil is quite open the irrigated area may best be operated in two units, dosed alternately. If the land is cropped this should be limited to grains, fodder crops and fruit trees.

Owing to the difficulty of securing uniform distribution of the sewage by reason of the variations in the permeability of the subsoil or improper gradients or joints in the lines of tile, and, further, owing to the difficulty in securing any effective drainage when the soil is saturated by storms, there is a measure of uncertainty in obtaining uniformly satisfactory results with this method of disposal; so that, *unless the conditions are favorable and other satisfactory methods are not feasible, subsurface irrigation is not recommended.*

Sand filtration may be used for tank effluents where more than 25 persons are served and where the land is suitable. For this number of persons an area of about 1,500 square feet of bed is required. The filters require careful design and maintenance. Cropping is usually undesirable. Dosing should be intermittent and applied in rotation to a depth of from 3 to 6 inches to two or more beds. In winter the beds should be furrowed to prevent freezing.

Sludge disposal. Sludge from tanks should be dried on porous soil or on specially prepared beds. It should be placed in layers of from 4 to 10 inches in thickness—the thinner the better—until sufficiently dry to be spaded, when it can be buried, plowed under or used as fertilizer. Well digested Imhoff sludge may be used to fill in land. Sludge from secondary tanks,* being difficult to dewater, should be placed on specially prepared beds to a depth of from 2 to 4 inches.

Otherwise, sludge may be drawn off into furrows and covered over.

Fly breeding may be prevented by applying a solution of borax as in the case of nightsoil.

To prevent odor, sludge may be covered with a thin layer of carbonate of lime or "land plaster."

The soakage pit is useful for the disposal of kitchen slops and urine where the water-carriage system is not available.

Slops may be spread over the surface of the ground in out-of-the-way locations provided the soil is porous and no standing water remains. Otherwise, a pit about three feet deep filled with broken stone, gravel, sand or clinkers may be prepared to which the slop water is discharged after the removal of the coarse solids by a strainer and the grease by a trap. The bed may be covered with a foot or so of earth to bring the top to the ground level and prevent access to insects.

For large volumes a tank and dosing siphon may be employed with advantage, and a system of subsoil tile substituted for the soakage pit.

Where many persons are to be provided for, as in schools, hotels and in the latrines of army camps, urinals should be installed, but for private dwellings a hinged seat that can be lifted is a simpler and suitable arrangement.

Urinals should be flushed with at least a gallon of water daily, and it is desirable that they be automatically fed with cresol or some other deodorant. The liquid can then be led to a soakage pit similar to that provided for slops.

Another plan suitable for camps is to build one or more vertical funnels into the stone filling of the pit to serve as urinals.

Such a pit may be about 3 feet to 6 feet square

* Those taking the effluent from filters.

with 24 inches depth of broken stone or other pervious material on the bottom, depending on the material and the number of persons served. Large installations should consist of several such units.

If preferred, a larger unit, 4 feet by 12 feet by 4 feet deep, adequate for 100 men, may be substituted for the one described.

For emergency use a cone of 6-mesh wire 18 inches in diameter at the upper end, 24 inches long and filled with sawdust will serve without a pit for 6 or 7 men.

Disposal of Garbage.

Garbage should be collected without admixture of ashes or other material in metal cans having tight covers, with one always available while the others are being emptied. The cans should be scalded with hot water after emptying.

Garbage is sometimes used to fill in waste land, but for obvious reasons this is not to be approved.

Garbage from households may be satisfactorily disposed of by burial following the rules laid down for nightsoil. Sometimes it is plowed under as a fertilizer, but although it has some value in this respect, the probability of odors ordinarily excludes this as a sanitary procedure. Where odors from garbage do occur the latter should be sprinkled with quicklime.

If without too large a proportion of moist vegetable matter a moderate amount can be safely consumed in the kitchen range, although at the risk of odor; while if the quantity is sufficient, as in a construction camp or a military cantonment, a small but well designed incinerator will eliminate much of this objection.

Burial in summer and incineration in winter, when the ground is frozen and the garbage is less moist, will often be found advisable.

For camps the "Woodruff Pit" has been found a satisfactory device. This consists of an excavation in the ground from 10 to 13 feet in diameter and 4 feet deep, lined with fieldstone. A conical pile of stone or a cone of brick with open joints is built in the center around a chimney of two or more lengths of sewer or stovepipe. Garbage and nightsoil placed on a fire built in the pit will usually be readily consumed; but if, on account of wet weather or very moist garbage, a more rapid combustion is desired, this may be had by pouring on a little kerosene oil. Care should be taken to prevent dissemination of papers, etc., by the wind.

Another arrangement consists of a pit 5 by $2\frac{1}{2}$ feet in plan with the bottom sloping from a depth of 6 inches at one end to 12 inches at the other. The trench is filled with fieldstone or, if these are not available, with tin cans, the excavated material is banked up on the sides and a fire built on top. After the stones are thoroughly heated any liquid wastes are poured in the trench at the shallow end of the pit, in which they are evaporated, and the solid material placed on top where it first dries out and then burns up.

A certain amount of odor will probably be inevitable with incineration, but with competent operation this need not be serious in the case of camps.

As garbage contains a considerable amount of grease which can be recovered by percolation with some solvent, leaving a tankage with some value as a fertilizer base, this may prove a wise method of disposal where collection can be made from a considerable population; but as the plant required is rather elaborate, this process can seldom be availed of except for large cities. The demand for grease and fertilizer has increased so during the war, however, their recovery should be considered in connection with army camps and cantonments.

Probably the most economical method for the farmer and for towns of moderate size is in feeding to hogs, due care being taken to maintain cleanly conditions about the pens. The garbage should not be kept more than 48 hours in any case before feeding. On account of the possible nuisance from smells and flies the pens should be located, if possible, at least a quarter of a mile from dwellings.

Disposal of Manure.

The manure pile is a most prolific source of flies, which find in it a favorable environment for breeding. As it takes about two weeks for the larvæ to develop, these should always be destroyed if the manure is to be kept for a longer period except in cold weather.

Fifty horses will produce a cartload of manure a day. Fly breeding may be prevented by an application of borax, using not over one pound to 16 cubic feet of manure if the latter is to be used as a fertilizer, but a better plan is to sprinkle with a solution of two pounds of copperas per gallon of water, or with a solution of hellebore mixed in the proportion of one pound to 20 gallons of water and applied at the rate of a gallon of the solution to each cubic foot of manure. By consolidating the exposed surface of the manure by battening with a spade it will prevent to a considerable extent the breeding of flies. The heat generated just below the surface by decomposition is then such that the larvæ are largely destroyed.

The most natural use for manure is as a fertilizer, but where this is impracticable it may be piled in windrows about two feet high, saturated with oil and burned.

Of the safeguards against disease in our rural communities those relating to the protection of

water supplies and to the transfer of disease germs by flies are by far the most important; so that, whatever method of disposal is adapted to a given situation it should be such that *no excretal matter can find its way, either by percolation through the soil or by surface wash during storms, to wells or streams used for drinking purposes, and that all such excretal matter shall be so protected by screening or otherwise that flies cannot find access thereto.*

In this connection it may be well to point out that when the polluting material lies at a higher elevation than the water surface in a neighboring well there is always the tendency of contamination of the well; but where the source of pollution lies permanently at a lower elevation contamination of the well will not occur.

During the preparation of this report the committee has addressed inquiries regarding the subject treated to the health authority of each state as well as to others and has received in return a large number of bulletins, reports and prints containing information of great value that has been freely drawn upon and for which the committee desires to express its hearty appreciation and thanks.

Respectfully submitted,

KENNETH ALLEN, *Chairman.*
FRANK A. BARBOUR,
GEORGE S. WEBSTER,
T. CHALKLEY HATTON,
LANGDON PEARSE,

Committee on Sewerage and Sewage Disposal, Sanitary Section American Public Health Association.

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HEALTH EMPLOYMENT BUREAU.

In order to help relieve the shortage of sanitarians, free help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Man for position of dairy and food inspector and director of city laboratory. Must be capable of doing water and milk analyses and bacteriological work. Salary $2,000 to $2,500. For details apply to Dr. R. L. Carlton, City Health Department, Winston-Salem, N. C.

Nurse who has had experience in tuberculosis work, for this division of the city health department activities. Salary $100 per month with transportation. Apply with references and full information to Dr. R. L. Carlton, City Health Department, Winston-Salem, N. C.

Visiting nurse to work with staff, secretary, two graduate nurses, social visitor, dentist, assistant in dental department, and office assistant. Associated Charities of Wheeling, 300-303 Board of Trade Building, Wheeling, W. Va.

Experienced bacteriologist as assistant in main office of Public Health Laboratory, University of North Dakota. $100 per month. Must have good working knowledge of blood counts, urinalysis, gastric contents. Address L. G. A. 297—care of the JOURNAL.

Instructor in geology for year 1919–20. Salary $1,500. Dean P. P. Boyd, College of Arts and Science, University of Kentucky, Lexington, Ky.

BOOKS AND REPORTS REVIEWED

Mortality Statistics of Insured Wage Earners and Their Families. *Experience of the Metropolitan Life Insurance Company Industrial Department, 1911 to 1916, in the United States and Canada. Louis I. Dublin, Ph. D., Statistician, with the collaboration of Edwin W. Kopf and George H. Van Buren. Pp. 397. New York: Metropolitan Life Insurance Company. 1919.*

Public health officers will be greatly interested in this volume of statistics published by the Metropolitan Life Insurance Company. It represents a statistical study of 635,449 deaths which occurred among the policy holders of this company during the years 1911 to 1916. The figures also represent about fifty-four million years of life. The magnitude of this investigation increases the reliability of the results. Seven-eighths of the policy holders were white and one-eighth colored. The figures include both sexes, the percentages for females being somewhat greater than for males. They also cover a wide age distribution. The deaths are sorted out in accordance with color, sex, and age, but not according to occupation. Reference is given, however, to Bulletin No. 207 of the U. S. Bureau of Labor Statistics which contains a full account of the mortality experience of the Industrial Department of the company. The two taken together give an admirable presentation of the valuable information which has been accumulated during the six years referred to.

The present report takes up, first, the mortality from all causes of death combined, an entire chapter being devoted to this subject, specific rates being given for white and colored persons, males and females, and for different age groups. Then follows a general classification of mortality from the principal causes of death, following the international list. Subsequent chapters treat specifically of tuberculosis, organic diseases of the heart, pneumonia, Bright's disease, external causes of death, such as accident, suicide and homicide, cancer, cerebral hemorrhage and apoplexy, four of the communicable diseases of childhood, namely, measles, scarlet fever, whooping-cough, diphtheria, and croup, diarrhœa and enteritis, diseases and conditions incidental to the maternal state, diseases of the arteries, appendicitis, pellagra, malaria, etc. In fact, the report covers practically all the common causes of death. These studies of particular diseases cover about 250 pages.

There are several appendices which give specific rates and so-called standardized rates.

Throughout the book frequent comparisons are made between the statistics of the Metropolitan Life Insurance Company and the statistics of the U. S. Registration Area of the U. S. census, and health officers will be especially interested in these comparisons.

The statistics in this report have been prepared with great care by the Statistical Department of the Metropolitan Life Insurance Company, and the thanks of the profession are due to Dr. Louis I. Dublin and his associates, Edwin W. Kopf and George H. Van Buren, for the preparation of a volume which will do much to arouse the interest of health officers in the statistical side of their work.

GEORGE C. WHIPPLE.

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Incidence of Smallpox Throughout the World in Recent Years. *R. Bruce Low, M. D., London: Reports to the Local Government Board (Great Britain) on Public Health and Medical Subjects. New Series, No. 117. 1918. Pp 104.*

Vaccination regulations having become lax, Doctor Low fears that history will repeat itself and that war will be followed by an outbreak of smallpox. He reviews the history of the epidemic of 1870–75, and estimates that over 500,000 smallpox deaths occurred at that time.

Before 1914, Russia reported smallpox cases. Russian prisoners spread the disease to German civilians. Deported populations have been living in Germany under unwholesome conditions. These returning will also spread the disease. Smallpox has recently appeared in Austria, Turkey, Spain, and the East. With the cessation of war, shipping will carry the disease from one country to another. The author urges immediate vaccination.

Sources of statistics are government publications, articles in medical journals, province, state and city health reports. The author says, "It is to be regarded as a summary of the information on the subject obtainable from the records in the Board's Medical Department." The extent of the data is as complete as each division's accounts permit, beginning with 1870.

In Europe, Russia and Spain are constant sources of infection. In Austria, smallpox has been continually prevalent, particularly in the provinces near Russia; in 1915, in Galicia and Bukowina there

were 20,116 cases. Germany is open to infection from Russia and Austria; during 1917 there were about 4,000 cases. Sweden's record is excellent; infection from Russia is responsible for the few cases,—18 deaths from 1895–1916, a period of 22 years; vaccination has been compulsory for years. Norway's and Denmark's records are also good. Holland's last outbreak was in 1893–94; in January to June, 1916, there were 79 cases and 8 deaths in Rotterdam. In Belgium vaccination is not compulsory. In 1913 there were 120 cases, and since then while there are no figures, smallpox deaths have been reported. France shows epidemics in 1870–75, and 1900–01. In 1910 there was an outbreak in Paris; in March, 1918, in Rouen. Great Britain shows no severe epidemic since 1870–75. Spain and Portugal show continuous high rates; in 1916 there were 2,630 cases in Spain. Switzerland, due to its situation, has a lower rate. Italy's statistics show epidemics in 1888, 1901, and 1911. In 1918, cases due to refugees or shipping were reported. In Greece, smallpox has been prevalent, the number of cases rising with the war. The Balkan states show smallpox occasionally. Since 1914 little has been heard. The disease is almost always present in Turkey, and seldom absent from the principal towns.

The statistics for Africa are few, but sufficient to show epidemics. Arabia and Persia are always sources of infection. Smallpox is one of the principal epidemic diseases of India. The annual average from 1880–1916 is 98,106. In Siam and Indo-China smallpox is epidemic. It is regarded as a necessary evil in China. Education is bringing knowledge of vaccination and care. Japan's case rate is reduced; from January to July, 1917, there were 4,974 cases. In the Dutch East Indies and the Philippines, vaccination has been introduced. An epidemic of mild type began in April, 1913, in Australia; isolation, vaccination, and disinfection were immediately carried out.

Mexico suffers from epidemics. Information is difficult to obtain. Cities' reports show the disease to be present. Central American statistics are poor. Occasional cases are reported. South America recognizes the disease as one of common occurrence. The West Indies are comparatively free from smallpox.

In the United States a mild form of smallpox is prevalent. Occasional deaths show that the virulent type is also present. In both the United States and Canada statistics are incomplete. In Canada, no year is free from deaths due to smallpox. Canadian statistics are given by provinces. Statistical Bureau, Metropolitan Life Insurance Co.

The Principles of Nursing. *Charlotte A. Brown, R. N., Superintendent of Nurses in the New England Hospital for Women and Children. Philadelphia and New York: Lea and Febiger. Ill. Pp. 257. Price, $1.75.*

This book, intended for a text-book for nurses, is up to date in the discussion of the subjects presented. The author, with her years of experience in teaching, is eminently fitted to advise others. The nurse's duty to herself without which nursing technique easily deteriorates, is treated in a chapter typical of the author's originality and good common sense.

The wide range of topics is notable, practically every subject the nurse meets in usual practice has been presented clearly and concisely. The glossary of medical terms with which the nurse should be familiar is especially valuable.

May Bliss Dickinson, R. N.

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Hygiene and Public Health. *George M. Price, M. D., Director, Joint Board of Sanitary Control. Second Edition, revised. Philadelphia: Lea and Febiger. Price, $1.50. Pp. 280.*

In this little book an attempt is made to give an epitome of Hygiene and Public Health, omitting personal hygiene. The book is divided into the subjects of housing hygiene, school hygiene, industrial hygiene, public water supply, food supply, milk supply, disposal of waste matter, public nuisances, prevention of infectious diseases, and federal hygiene.

The material is presented in the form of either a series of definitions or a concise account of the principal facts connected with the subject.

One important addition has been made over the previous edition. This is a reproduction of the main features of the report of the American Public Health Association Committee on Standard Regulations for the Control of Communicable Diseases, which appeared in the "Public Health Reports," issued by the U. S. Public Health Service, October 12, 1917. In other respects the book gives the impression of being revised only to a slight extent.

The trained worker in public health may find little to help him practically in this volume, but the beginner and others interested in obtaining a general view of the field will find it of assistance especially in connection with other reading. There are some irregularities in the treatment, for example, while considerable space is devoted to the subjects of antitoxin and the visiting nurse, the Schick test, toxin-antitoxin immunization and the public health nurse are not mentioned.

There is no bibliography and there are but few references. The index is fairly complete.

B. E. R.

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The Modern Hospital's New Managing Editor.

The new managing editor of *The Modern Hospital*, Mr. J. J. Weber, has been till now associate director of the Boston Dispensary, and was also eastern editorial representative of the magazine whose editorship he now assumes. His training and experience have given him exceptional equipment for this work. On his graduation from the New York School of Philanthropy, he became director of the Civic Association of Englewood, N. J., a position which he left to take that of financial secretary of the Charity Organization Society of New York. Later he became connected with the New York State Charities' Aid Association. As secretary of the Committee on Hospitals of that association, Mr. Weber was largely responsible for much important work, including community surveys of hospitals in Westchester and Washington Counties, New York, and a critical study of plans of various new hospitals in New York City, and elsewhere. His energy and experience will doubtless extend the field of usefulness of *The Modern Hospital* through many years of the future.

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Today's World Problem in Disease Prevention. *John H. Stokes, M. D. Issued by the United States Public Health Service. 136 pages.*

One of the benefits produced by the war is the change in public opinion regarding gonorrhea and syphilis. These diseases have been dragged into the open and are now being attacked with characteristic American energy. In order to cope with them effectively, authoritative information is necessary and this is well supplied in this booklet by Dr. Stokes. Written by an expert, it is a thorough exposition of the nature, source, prevalence, transmission, treatment, cure, and prevention of these two scourges, together with the social, psychologic, economic, and public health background involved. All sides of the problem are presented in a convincing, non-technical manner. Since the booklet is available for free distribution on application to the Public Health Service, it should be in the possession of every health officer, social worker, and practitioner.

James A. Tobey.

CONVENTIONS, CONFERENCES, MEETINGS.

The Journal will be glad to publish the dates of prospective conventions or meetings of associations whose purposes are allied to those of the American Public Health Association.

November 11–13, Asheville, N. C., Southern Medical Association.

November 11–13, Asheville, N. C., American Child Hygiene Association.

November 11–13, St. Louis, Mo., National Drainage Council.

November 12–14, New Orleans, La., American Society for Municipal Improvements.

November 17–20, Chicago, Ill., American Veterinary Medical Association.

November 23–29, Chicago, Ill., Inter-Professional Conference.

December—, Minnesota Hospital Association.

December 1–2, Mankato, Minn., South Minnesota Medical Association.

December 4, Providence, R. I., Rhode Island Medical Association.

December 15–16, Kansas City, Mo., Western Surgical Association.

1920, January—, Concord, N. H., Health Officers' meeting.

January—, Engineering Institute of Canada.

1920, February —, Canadian Red Cross Society.

1920, March 22–23, New York City, New York State Medical Society

1920, May —, New Orleans, National Conference of Social Work.

1920, May 12, Washington, D. C., U. S. Pharmaceutical Conventions.

In the December issue look for Sir Arthur Newsholme's address at New Orleans together with Papers and Discussions on Federal Health Co-ordination by Five or Six National Authorities.

MISCELLANY

THE DOG IN THE MANGER.

In Slang But—Not A Fable.

It happened down in Miasma County; it is needless to name the state, as similar counties are found in many parts of the South. But Miasma was in the Fever and Ague Belt and Malaria and Hookworm and Typhoid and Diarrhea were and had been plentiful as far back as the Oldest Citizen could remember. The county needed many things in the Way of Progress, but more especially things like Soap and Water, Paint and Tooth Brushes. The Death-Rate was Something Fearful, being largely of the kind called Preventable. The Hookworms were of a Ferocious Type, with appetites for Corpuscles that were insatiable, and the Malaria was the kind that can be Put Up in Packages and sent about from Place to Place. Every family in the county had an Open Surface Privy, if any at all, and everybody took Quinine except the Lady Principal of the County High School and she took Quin-een. It was the Rule and Fashion for everybody to be in a Run Down Condition from these causes and to be Predisposed to Typhoid and Diarrhea—and these diseases did their part.

By far the Most Prominent Citizen in Miasma was Old Doc Richards, the County Physician. Doc had a Reputation that reached Up and Down the Road and he had long been the Big Thing in the way of County Politics. Among the Laity, Doc was looked upon as a kind of Walking Directory of all that is in the Universe; and he did his part toward Keeping Up the Impression. He went about dispensing what is Technically Known as Hot Air and always let it be known that he belonged to one of the Old and Influential Families. Doc wasn't well up on Modern Medicine, but he was a Successful Practitioner. He always carried a can of Peppermint Lozenges and called everybody by his First Name—and that was All That Was Necessary in Miasma. But it was as County Physician that Doc was a Shining Star. The Board of Commissioners regarded him as the Real Thing and the Only One in the County who could properly Hold Down the Job and give "Advice What is Advice." Why, Doc has been County Physician for Years and Years, Stood in With the Better Element, and had a Political Pull that was enough to Make or Break or Change a Board at every election, if he desired. Of course, from Doc's standpoint the $85.00 per was the Real Thing, although he had repeatedly stated that, except for the Good he could do Miasma County and Humanity at Large, he wouldn't have the Job if it was Handed to Him on a Platter with Water Cress Around It.

But the Old Order Changeth and, no matter what happens, Progress Spreads; even if many of us are Inconvenienced by it and are forced to Change our Manner of Thought and our Way of Living. And so it Came About that a few Poorly Paid School Teachers and two or Three Young Doctors who were Jealous read up on the Vital Statistics of the State and had the Audacity to Compare the County's Health Record with that of Other Counties; and they Went So Far as to Put a Piece in the Paper About It and to interest some Business Men in Demanding that the County employ a Whole-Time Health Officer. Now a whole-time Health Officer does away with the Office of County Physician; and Doc Richards was the first one to see that this would be Expensive for the county and, in order to Protect the Poor Tax Payers, he Opposed the Movement.

On the First Monday a Delegation of business men and the Woman's Club appeared before the board and asked for action. The matter was Discussed Pro and Con and it began to look as if Progress had Made a Killing. It was Actually Demonstrated that One Baby Out of Every Four born in Miasma County died before it was Two Years Old. At this point Doc had to explain that Vital Statistics largely depend on the Thoroughness of Reports and that Miasma's rate was high because He, the County Physician, encouraged the people to make the reports. A Young Doctor, just out of the Hospital, asked why the Typhoid Death-Rate in Miasma was ten times higher than the State's Death-Rate from this disease; Incomplete Reports could hardly account for such a High Rate. The Delegation wanted the county to Coöperate with and have the State Board of Health appoint a Trained Health Officer.

There Just Ain't No Telling what would have happened if Doc hadn't got an opportunity to motion to the Chairman to come into the anteroom where the Register of Deeds keeps year-before-last's tax books, the kindling wood, and the broom. After a short Consultation the Chairman called the Board into Executive Session and asked Doc to meet with them, since they were to discuss the county's Health Situation.

At this Executive Session, Doc explained the whole Situation to the Board. He told how Coöperation With the State Board of Health meant the Signing Away of the county's Rights and Personal Liberty and expressed his belief that the Board

of Commissioners of Miasma knew more about the county's Needs than any State Board that Ever Hopped; and, also, that the people had entrusted the Board with the Welfare of the county, —otherwise they wouldn't have been Elected To Office. The way Doc Burned Up The State Board of Health, it's a wonder the Insurance Department didn't get after him for Arson. (But Doc had been having troubles of His Own. On the Q. T., his Practice had fallen off and the High Cost of Living was Getting his Goat.) He made the Board understand that he had always been Doing Things For and To the Poor and that he was Benevolent to Beat the Band, and furthermore that he knew the county Much Better than an Outsider could ever know it. In a word, the People Wouldn't Put Up with having their Taxes Increased to pay a Fancy Salary to a Rank Outsider,—maybe some Yankee who couldn't understand Miasma and her ways. The Board was of the kind that Believe Everything They Read in the Papers and When Doc got through he could tell by the Scared Look on their faces that he had Knocked A Home Run.

Well, the Board was In a Dilemma and a Barrel of Pickles. Doc and the Poor, Oppressed Tax-Payers were on one side and the Drove of Women and Prominent Citizens on the other. The only thing that could be done was to appoint Doc Whole-Time Health Officer and raise his Salary from $85.00 to $200.00 per month.

The County and State Papers heralded the Progressiveness of Miasma County. And Doc Issued a Statement telling of the Wonderful Things he Planned to Do. By the End of the Year he hoped to Run Out Malaria and the Hookworms and make Typhoid and Baby Diarrhea Back Numbers. In a word, the Death-Rate, as soon as it heard that he had been appointed Health Officer, was expected to Roll Over and Come Down and Eat Out of Doc's Hand. And this is the way Health Work began in Miasma County.

And Doc made Quite a Hit. He visited all the schools and told the teachers to Examine the Children, saying that he would Drop Around next year and give more directions. He wrote to the State Board of Health and to the Congressman and the Senator and got All Grades of Health Literature which he packed in the Rear of the Grand Jury Room in the Court House. Also, he offered to vaccinate anybody for typhoid fever who could catch him in his office. Doc, of course, had to Spend Some Time reading Public Health Literature because he wanted Miasma County to have Just as Up-To-Date a Health Officer as anybody's county. Then, he had to attend Health Meetings, whenever the County would Pay His Expenses. But where Doc Starred was in the Health Speeches he made at School Breakings and Woodmen's and Juniors' Rallies. He always did like to go where there was Plenty to Eat and so accepted All invitations because he knew it would offer a Great Opportunity to tell the people how progressive the county was and how it was able to Conduct Its Health Work without the aid of The State Board of Health or of Anybody or Anything. They even asked him to make a Health Talk at the Chautauqua because he was the Only Person in the county that Would and Could make more noise than the merry-go-round. And so Miasma had Health Work for Two Whole Years.

But the Hookworms and Mosquitoes didn't Keep their Contract with Doc; and Typhoid Fever was about as Gay As Ever and Infant Diarrhea acted like it had never heard of a Health Officer. The Vital Statistics Report showed Miasma's Death-Rate to still be up Among the Highest Branches without showing any Signs of Coming Down. And when Election Time Came the folks decided that the County was Spending Too Much Money and Put In a board Committed to Decrease Expenditures. This board's First Action was to Vote Out the County Health Officer, the Demonstration Agent, and the Supervisor of Schools, and allow the county to go back to the Good Old Times when each family took care of itself without having the County or State Meddle with Its Personal Affairs. There was no opposition to this. Doc had proved conclusively to Everybody's Satisfaction that Health Work, along with other progressive measures, is of No Value and is Just Propaganda to furnish jobs to Young Health Officers who are too Inexperienced to Make a Living at Practice.

And so it will be Many a Day—probably a Generation—before Miasma County will again appropriate money to save the Lives of her Babies and the Health of her Citizens. Although fire is an excellent thing, a Burned Child is ever after afraid of it, even if he recognizes that he used the fire in a way he should not have used it. But Doc is still the County Physician and draws his $85.00 per.

B. E. Washburn, M. D.

Raleigh, N. C.

PUBLIC HEALTH NOTES

Abstracts by D. GREENBERG, M. P. HOROWITZ and MAYO TOLMAN.

Eradicating of Influenza.—Dr. Simon Flexner in his presidential address read before the Tenth Congress of American Physicians and Surgeons (1919) proposes a method of attacking influenza which is worthy of careful consideration. In the development of his thesis he shows that influenza is a disease which is introduced from without. Epidemic diseases have fixed locations, the so-called endemic homes of the diseases. There are excellent reasons for regarding the endemic home of influenza to be eastern Europe, and in particular the border region between Russia and Turkestan. From this Eastern home, at intervals usually of two or three decades, a migrating epidemic influenza begins, moving eastward and westward.

Now since the combating of this epidemic disease, when it becomes widely and severely pandemic, is attended with such very great difficulty and is of such dubious success, and this notwithstanding the prodigious public health contests which are waged against it in which the advantages are all in favor of the invading microörganism, it would seem as if an effort of central rather than peripheral control might be worth discussion. According to this proposal, an effort at control amounting even to eventual eradication of the disease in the regions of its endemic survival would be undertaken, an effort, indeed, not occasional and intensively spasmodic, as during the pandemic excursions, but continuous over relatively long periods, in the hope that the seed beds, as it were, of the diseases might be destroyed.

That such an effort at the eradication of a serious epidemic disease may be carried through successfully, the experience with yellow fever abundantly proves.—S. Flexner, *Jour. A. M. A.*, Sept. 27, 1919, p. 949. (*D. G.*)

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Safety Zones for Babies.—Babies who expect to spend their first year of life in a city should take care to choose a "safety zone." According to a report on Infant Mortality in Saginaw, Mich., given out by the Children's Bureau of the U. S. Department of Labor, it is more than six times as dangerous for a baby to be born in one section of the town as in another. The investigations of the bureau have shown that the essentials of a safety zone for babies are that a majority of the fathers in it must earn a living wage, the mothers must not be employed during the year before or the year following the baby's birth, the mothers must receive proper care when their babies are born, both fathers and mothers must be able to read and write, and the babies must be properly housed.

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Disease in Army Camps.—The report of cases of special disease in the U. S. camps for the week ending August 8 showed 657 cases of venereal disease and 68 of all other diseases, showing that this is still the great military problem. (*J. E. L.*)

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Keep Well Series.—Among the recent publications of the United States Public Health Series are several small pamphlets in the "Keep Well Series," as follows:

No. 3. How To Avoid Tuberculosis. The essen tial facts concerning the cause, recognition, and prevention of tuberculosis.

No. 4. Diphtheria. How to recognize the disease. How to keep from catching it. Also the treatment.

No. 5. The Safe Vacation. Useful advice on the selection of a place to go. Advice in emergencies arising in lonely places.

No. 6. Cancer. Salient facts, including exposure of popular fallacies.

No. 7. Vaccination. Smallpox and typhoid. Reasons why.

These booklets are distributed free by the Superintendent of Documents, Washington, D. C.

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Methods of Louse Control.—The problem which the authors investigated was to find a method of delousing which would be simple, cheap and quick so that with a very small equipment a large number of men may be cleaned in a short period of time. Furthermore to protect men from reinfestation a chemical is required with will not only kill lice, but will also retain its effectiveness for the longest period of time.

At first breeding experiments were undertaken with the object of studying the life history of the louse and some interesting data have been obtained. Clinical studies, too, were carried out and the observations indicate that a macular, erythematous skin eruption, somewhat resembling that of measles or German measles, distributed over the chest, back and abdomen, may occur in a normal individual who allows lice to feed upon the skin of his forearm. In addition to the rash, fever and general lassitude are produced as a result of louse bites, which point strongly toward the presence of a substance in the louse sufficiently toxic to give rise to these clinical manifestations.

Methods of control of the louse in clothes were next studied with the object of determining the value of the ordinary steam laundry processes in garment disinfestation. The experiments undertaken show that the washing of rough cotton goods at 180° F. (82° C.) for 15 or 30 minutes will destroy the lice and their eggs. Washing cotton khaki clothing at a temperature of 120°–130° F. (49°–54° C.) for 15 minutes will prove destructive to the active stages, but will not completely destroy the eggs. Washing for 30 minutes destroyed the eggs. Pressing in the universal press was also effective, but this treatment cannot be relied upon to destroy all the eggs in an infested suit, as portions of the garment may not be touched. The washing of woolen goods requires a special procedure. Infested garments are to be washed at a temperature of 120° F. (49° C.), not to fall below 115° F. (46° C.) for a period of 15 minutes, this treatment destroying the active stages of lice. Garments are then treated in the regular manner until perfectly dry, when they should be placed in the hot air tumbler at a temperature of 150°–170° F. (66°–77° C.) for 10 to 15 minutes. This procedure destroys the eggs. By this method it is possible to launder woolens without shrinkage, and to destroy the lice and eggs without the use of a special chemical.

Where the use of steam or hot air for the sterilization of garments is not available, fumigation may be carried out with great success. Chlorpicrin is superior to the other chemicals recommended for fumigation because of its extreme toxicity, high volatility and ability to penetrate through masses of clothing. It also destroys the eggs and active stages of the lice in a short period of time.

Methods of louse destruction by pediculicides were next tried. The use of sachets containing volatile compounds, and the use of louse powders while effective to some degree would prove to be very impracticable. Impregnation of the garment is the most promising method of control with the use of pediculicides. Active chemicals of low volatility are necessary to prove effective for the longest period of time. Halogenated phenols such as dibrommetacresol, dichlormonobrommetacresol and their sodium salts, dibromcarvacrol, and dibromxylenol were found to be the most promising under laboratory conditions.—W. Moore and A. D. Hirschfelder. An Investigation of the Louse Problem. *Research Publications of the University of Minnesota*, VIII, No. 4. July 1919. (*D. G.*)

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Health Officers' Opportunities in Preventing Occupational Disease.—Many opportunities present themselves to the health officer for helpful research and educational activity in the development of proper supervision of the health of factory workers for the purpose of detecting and preventing diseases which are directly or indirectly due to industry.

The coöperation of the labor unions is a phase which needs to be developed. They should be made to understand the vital significance of health conservation to the welfare of the worker. In New York City the support of a number of intelligent labor leaders was obtained in furthering a program for effective work in industrial hygiene. Through the coöperation of their leaders the four central labor organizations of the city, together with more than 100 subordinate labor unions were organized by the Division of Industrial Hygiene of the New York City Health Department to constitute the Labor Sanitation Conference, serving as a vigilance committee.

Coöperation with manufacturers' associations is also to be sought. Hospital and dispensary staffs and private physicians need to be brought to a keener appreciation of the great service they can perform to society as well as to medical science, by training and equipping themselves to recognize those diseases which are the direct and specific sequelæ of occupation and also the great number of diseases in which occupational factors play a more or less significant part.—L. I. Harris, *Jour. A. M. A.*, Sept. 20, 1919, p. 880. (*D. G.*)

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Toxic Properties of Milk.—Milk heated to 80° or 85° C. for from twenty to thirty minutes and kept at 37° C. decomposes with the elaboration of definite poisonous substances, a fact which, Ford says, should be kept clearly in mind in the consideration of the problem of milk pasteurization; and, under all circumstances, milk heated to temperatures sufficient to destroy vegetative bacteria but not their spores should be kept at a low temperature to prevent the development of these spores and should be used within a brief interval after the heating. Whether the bacterial products found in this decomposed milk have any poisonous action when taken into the digestive tract has not been determined, but in view of their presence in milk the practice of keeping pasteurized milk for any considerable period of time before using is condemned strongly by the author. Finally, the occurrence of toxic substances in heated milk arising from the development of spore-bearing bacteria requires a rigid supervision of milk production before pasteurization to prevent the entrance of organisms of this character.—W. W. Ford, *Amer. Jour. of Diseases of Children.* Sept., 1919, p. 199. (*D. G.*)

Ambulatory Motor Clinic of the Chicago Tuberculosis Institute.—Through the courtesy of James Minnick, Superintendent of the Chicago Tuberculosis Institute, the JOURNAL is able to present a picture of the motor vehicle and a story of the work of the clinic.

More than two years ago, the Institute extended its activities to include the whole of Cook County, and sent its exhibit to all parts of the county. In coöperation with the Bureau of Social Service of Cook County the Institute furnished nurses to work with the regular county nurses. Clinics were established in Oak Park, Blue Island, Des Plaines, and Argo. These were all conducted by physicians of Oak Forest, excepting that at Oak Park.

The influenza epidemic required additional nurses and since the county had no funds for the purpose the Institute employed ten nurses for this special work. The nursing service proved so valuable, and so great has been the demand for it that it has been continued on a larger scale than before the outbreak. A coöperative plan has been entered into with fourteen of the county towns whereby the cost of a full-time nurse is equally divided between the county and the Institute. In addition to these fourteen nurses, the Institute employs five additional nurses for purely rural nursing service.

With the increase of this nursing service, there were demands for clinics in all parts of the county. It was impossible to establish a permanent clinic everywhere for a number of reasons, the great cost, the lack of medical service and the smallness of the communities among them. It was decided, therefore, to construct a clinic on wheels that could be used wherever needed.

A study of the Government traveling dispensaries was made, but an entirely different plan was adopted. The main body of the car is a room 6 feet wide by 9¼ feet long, and 6½ feet high. The driver's cab, usually large, is provided with curtains which when drawn make a dressing-room for patients coming for examination. The seat in the cab is so constructed as to furnish a bed for the chauffeur in case he has to be out over night with the car. Entrance to the examining room from the driver's cab is by means of a sliding door. The tail gate of the car when open, with specially constructed folding doors makes another dressing-room at the rear of the car. By this arrangement patients come and go at each end of the car, thus saving the time of the physician. There is a special compartment over the driver's seat used for storage and for the 15 gallon water tank needed in the clinic.

The main room of the car has the usual dispensary equipment. The furniture is all steel and painted in white enamel. Everything is clamped to the floor so as not to be disarranged when the car is in motion. The car rests on jacks when at its stations. The equipment in furniture is the following: wash-stand with running water, table for doctor's use, desk for nurse's use, and for filing of records and other material. Three steel lockers provide for storage of instruments and clothing. The equipment is more than usually complete so as to care for emergency cases which may be met



Health Clinic Motor Ambulance.

while on the road. Beneath the car there are three boxes built to contain the tools and electrical wire equipment. There are two wiring systems, one from the batteries and the other to be connected with the regular current available in school and town buildings which furnish light, and in the winter time, heat, for the electrical radiators of the clinic.

The full circuit includes about 42 different towns which it visits according to a regular time schedule.

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Facts About Rats.—Rats yearly do damage in the United States to extent of more than $100,000,000 of which $15,000,000 is represented by fires caused by rats eating away the insulation of electric wires and gnawing through gas pipes. The damage to buildings through the gnawing of heavy timbers and to the bindings of books in libraries all count towards the total, but a loss that probably cannot be calculated is that due to sickness spread by the rat. Rats have carried the black plague from India into every continent on the globe. No premises will be free from the dangers of disease until the rats have been completely exterminated. (*M. T.*)

STATE HEALTH NOTES—LEGISLATION

National.—Through the courtesy of the Hon. Joseph I. France, Senator from Maryland, Chairman of the Senate Committee on Public Health and National Quarantine, the JOURNAL is enabled to present this view of the status of health legislation in the Congress. The legislation under consideration which has been referred to this committee includes: Senate Joint Resolution 76, for the investigation of influenza; S. 759, to authorize veteran physicians and surgeons of the late war to practice anywhere in the United States; S. 813, to establish a U. S. P. H. S. Sanitary Reserve Corps; S. 814, to establish a Department of Health; S. 1049, to provide for reinstatement in the U. S. P. H. S. of men who resigned for the purpose of enlisting S. 1660, to provide a Division of Tuberculosis in the U. S. P. H. S.; S. 2207, to admit civilian employees of the government to the Army or Navy hospitals; S. 2507, to establish a Department of Public Health; S. 2616, with reference to the Census; S. 2785, on drug addiction. From the chairmen of the committees of the House to which the bills have been referred there have been received: H. R. 8954, to prevent manufacture, sale or transportation of adulterated foods, and H. R. 9521, to prevent hoarding of foods and to regulate shipments of cold storage foods. The Senate bills were formally read and referred to the Senate Committee on Public Health, with exception of S. 2616, which was referred to the Committee on the Census, while the House bills have been referred to the committees on Agriculture and Interstate Commerce, respectively.

Senate Joint Resolution 76 has been reported by the committee and is now before the Senate. It appropriates $1,000,000, available till expended, to enable the U. S. P. H. Service to investigate influenza and allied diseases, and for allotment of sums to research institutions for the purpose of discovering causes and methods of prevention of these diseases. The money is to be disbursed by the Secretary of the Treasury, and may be used in various related matters, including salaries, supplies, printing, rent and publicity. The allotments to universities, colleges or research institutions are not to be limited to any one school of medicine. The Resolution provides that the secretaries of War, Navy and Treasury be directed to utilize jointly the personnel of their respective medical departments and that of the U. S. P. H. Service.

S. 2507, for a National Department of Health was introduced by Senator France on July 17. It follows the general plan of the Owen bill, S. 814, with important modifications.

It provides for a department of public health under the direction of a secretary, who shall be a member of the cabinet, and for three assistant secretaries, the first assistant to be a man trained in medical science, public health and sanitation; the second to be an expert in vital statistics; and the third to be a woman trained in medicine or nursing and public health. The U. S. Public Health Service and the Bureau of Chemistry are to be transferred to the new department, which is also to have bureaus on vital statistics, sanitation, hospitals, child and school hygiene, quarantine, food and drugs, nursing, tuberculosis and personnel. The secretary of public health is directed to communicate with the governor of each state requesting him to recommend to the legislature suitable legislation with adequate appropriations to secure coöperation between the Federal Department of Public Health and the State Board of Health. Every state taking such action is to be entitled to its proportionate share of such funds as may be appropriated by Congress for carrying out the provisions of the act. The secretary of public health is also directed to divide the United States into health states, districts, subdivisions and precincts, each conforming to the geographical boundaries of the various political divisions. Each state is to create a state board of health with a state health officer and a health officer for each district, subdivision and precinct, the secretary of public health to appoint these state officers as Federal health officers "so that in each coöperating state every health officer of said state or of each district, county or precinct therein is by virtue of his selection by the local authorities become also a federalized officer and as such an integral part of the Department of Public Health." The Department of Public Health is directed to coöperate with the Departments of Commerce, Labor and the Interior in the collection of vital statistics and to establish a uniform system of cards, records and reports regarding diseases, disabilities, industrial accidents, births, deaths, physical condition of school children, the number and condition of existing hospitals, etc. The bill provides for the appropriation of $15,000,000 for 1920 to be prorated among the states in proportion to their population as soon as the states comply with the provisions of the law and the regulations of the secretary of public health, provided that each coöperating state must contribute to the public health work a sum equal to that contributed by the Federal government and that it must make full and complete reports of births, deaths and morbidity. It also appropriates $48,000,000 for the construction of sanatoriums and hospitals, this sum to be distributed among the states in proportion to their population, each state receiving its allotment

to provide an equal amount, also location, plans and means of future support for the proposed hospital.

Under this bill there will be in every county of the United States a public health officer, at once the local and Federal health officer, so that coöperation will be assured between all of the health promoting activities for the benefit of the community. The underlying principle of the bill is the coöperation and coördination of all the health administration from the national officers to the civil agencies in the smallest villages. It is urged that there will be not only conservation of energy but actual economy in expenditures.

S. 759 is a bill, which while general in its specifications so correlates them as to focus them upon an individual, who is to be given a roving commission to practice medicine and surgery wherever the flag of the Union flies. S. 1049 provides for the reinstatement in the U. S. Public Health Service of medical men or employees who resigned from the service to enter the Army or Navy, and who did enter one or the other. Such men after honorable discharge shall be restored to former position in the service and to the same seniority in rank and position.

S. 1660 has been reported to the Senate by Mr. France's committee. It provides for the establishment as a part of the U. S. P. H. Service, an additional division to be known as the Division of Tuberculosis. This shall be under the direction of a commissioned medical officer of the Service, who while serving shall have the rank of Assistant Surgeon-General. The bill further provides for an Advisory Council for consultation with the Surgeon-General of the Service, relative to the scientific work to be inaugurated by the Service and the methods of performing it. The Council is to consist of ten competent men, selected because of their special knowledge relating to public health, to be appointed by the Surgeon-General with the approval of the Secretary of Treasury. Their initial terms are to be staggered, two members to retire each year, subsequent appointments being for five-year periods. The compensation is to be $10 a day for actual duty with a maximum of $100 in any one fiscal year, and actual traveling expenses. This Council is to take the place of the Advisory Board of the Hygienic Laboratory, which is to be abolished. It is hoped in Washington that the Senate can come soon to the consideration of this bill.

S. 2616, introduced by Senator France and now before the Committee on the Census, has been popularly described as "Sense in the Census." It is intended to repeal and reënact certain sections of a previous act to provide for the Fourteenth and subsequent decennial censuses. It provides for the beginning at once of certain inquiries, and for the publication of Official Federal Registration Lists every year, such lists to be sold at reasonable prices under the direction of the Director of the Census. There is proposed a restriction of the Fourteenth Census to inquiries relating to education, health insurance, agriculture, manufacture, forestry and forestry products, mines and quarries and to the population of the United States and colonies.

A card index of the population is provided for, to furnish continuous records of each individual. These are to be made so as to be available for use in vital, educational and industrial statistics, as a basis for the formulation of legislation to promote general welfare, defense and safety by improving the vital, educational and industrial condition of the inhabitants. The items that are to be recorded are named in considerable detail.

The section on the inquiry relating to public health and insurance specifies data useful for the standardization and extension of all existing public health agencies, and for the promotion of rational insurance systems, particularly with the purpose of limiting the ravages of tuberculosis and other communicable diseases, preventing industrial disease and accidents and the destitution consequent on such accidents and sickness. There shall be a survey and tabulation of vital statistics of the population, a survey of public and private health agencies, of public and private hospitals and sanitoria, of industrial accidents and conditions, of housing conditions, of old age, health, accident or other forms of insurance, etc. There is provision for two commissions of three members each at $5,000 a year salary, one on education and the other on public health, vital statistics and insurance, to confer with the Director of the Census as to the most efficient methods of collecting and classifying data with reference to these subjects.

Other sections refer to the inquiries with reference to agriculture, manufactures, mines and quarries, etc., and outline the form of administration. It is provided that one properly qualified, regularly licensed physician shall be appointed as Medical Supervisor for each census precinct, and one such physician as Medical Director for each census district, whose duties it shall be to assist in the collection of the health and vital statistics. Provisions are made for the census of men in the Army, Navy and executive departments of the Government.

S. 2785, introduced by Senator France, has been considered by the Committee on Public Health and National Quarantine and is now before the Senate for action. This bill provides for the coöperation of the government with the states in the care of drug addicts. Financial means are offered by the

government with the proviso that an equal amount shall be appropriated by the state. Buildings belonging to the government may be used by the state together with equipment and medical supplies including narcotic drugs, with the approval of the Secretary of the Treasury. A portion of the appropriation may be used for research or educational work, with the necessary administration for this. Although the act does not specifically state it, it is evident that the administration of the act will come upon the U. S. P. H. Service, and the secretaries of War and the Navy are authorized to transfer to the Service without charge hospitals and equipment not necessary for their own uses.

In introducing his bill Senator France called attention to the fact that the transfer of hospital facilities is an emergency measure of utmost importance. The situation is serious in the country. There is a failure to enforce the Harrison anti-narcotic law, necessitated by the lack of facilities for the treatment of addicts, who should have hospital care and skilled treatment. Senator France calls for the enforcement of the Harrison law, to prevent the increase in narcotic users, increased by the turning of those accustomed to alcoholic beverages to drugs under prohibition. The time is favorable on account of the great equipment of the Army and Navy that is not now necessary to them.

S. 2207 has likewise been reported to the Senate by committee and now awaits action. It has the merit of brevity, consisting of a single paragraph. It provides that civilian employees of the United States Government stricken with tuberculosis while in the employment of said government shall be admitted, so far as capacity may allow, to the hospitals already established for the Army or Navy or for the Public Health Service, on the same terms accorded those already entitled to admission.

The two House bills, 8954 and 9521, were introduced on September 2 and October 2, respectively. The latter has been twice read and is now before the Committee on Interstate Commerce. It provides for the marking of cold storage food or the container, with the label, "Cold Storage," with all the dates and the name of the warehouse. Subdivisions of original cold storage packages must be labelled. Marks must not be removed or altered; food must be sold within one year of the date when first placed in cold storage; and approval following inspection is necessary for warehouses and vehicles. Penalties are provided, fine or imprisonment or both; sections outline the administration; and $50,000 is provided to be expended by the Secretary of Agriculture for the administration.

H. R. 8954 is an amendment to a section of the bill against adulteration or misbranding, approved in 1906 and amended in 1913. It relates largely to the technical details in the interpretation of the terms, "adulteration" and "misbranded."

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Manitoba.—The Province of Manitoba at the 1919 sessions of the Legislature passed legislation entitled, "An Act for the Prevention of Venereal Diseases." The Provincial Board of Health is authorized to make regulations with a view to preventing the spread of the diseases. The regulations as they now stand define "venereal disease" to mean and include syphilis, chancroid and gonococcic infections. A dispensary is established in the city of Winnipeg under the administration of the Provincial Board of Health. Other dispensaries may be established in other parts of the Province. Cases of gonococcic infection are to be considered infectious until all discharge has ceased, or at least two successive smears taken not less than 48 hours apart, fail to show gonococci. Cases of syphilis shall be considered infectious until all lesions are completely healed. The Chairman of the Board may require the submission of specimens from cases for examination. Physicians are to submit these when required to do so. All persons coming to the dispensary for treatment must continue under treatment until they are no longer able to transmit the disease. The dispensaries will issue salvarsan or its equivalent without cost to hospitals and to patients under treatment. No person except a physician shall attend or prescribe for any person suffering from venereal disease. Every physician shall report cases within 24 hours. Cases may be reported by serial number only, the physician keeping a record by which the patient may be identified. Persons in jail may be examined and treated if necessary. Physicians are not to be liable to any action for reporting cases or giving evidence thereon. A heavy penalty is inflicted on anyone who knowingly infects another person with a venereal disease. Patients must be treated at least once in every two weeks until cured. If a patient changes his physician, the new physician must notify the board of the change. If a patient fails to attend for treatment for one month, the physician shall report the name and address of the patient to the chairman. Every physician is required to warn his patients of the contagious nature of the disease and also of the danger of contracting any marriage until cured. Physicians may not give a certificate of cure to any person suffering from venereal disease. Bacteriological examinations are free of charge. The Chairman of the Board may require any person who is believed to be suffering from venereal disease to be examined. If the report discloses that the patient

is in an infectious stage, such person may be detained in any dispensary for such a time as may be necessary. A penalty may be inflicted on anyone who obstructs the carrying out of a warrant. The chairman may enter any premises for the purpose of making enquiry or examination with respect to the state of health of any person therein. Every hospital receiving aid under "The Charity Aid Act" must receive persons suffering from venereal disease on the same terms as other patients. If a patient is unable to pay for treatment, the Board may pay for him and charge the cost to the municipality. No person afflicted with venereal infection shall be employed in the preparation of milk or foodstuffs or in nursing. All city and other medical health officers are, for the purpose of the control and supervision of venereal disease appointed inspectors without salary. It is an offense with a maximum penalty of $500 to advertise remedies. Exception is made in the case of articles approved by the board and books and papers published in good faith for the advancement of medical science. Every person employed in the administration of these regulations is required to preserve secrecy with regard to all matters that may come to his knowledge. Lawful and proper remedies and methods of treatment are prescribed in the regulations. A penalty of not less than $10 and not more than $100 is prescribed for a violation of any of the regulations except when a higher penalty is specifically mentioned.

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Alabama.—The bill proposed by the State Board of Health, known as the McLeod-Cowan bill has just passed. Its principal features are: Appropriations of $90,000 the first year, $125,000 the second year and $150,000 each year thereafter; adoption of the model law for vital and mortuary statistics; adoption of latest methods for reporting notifiable diseases; strict venereal control regulations; regulations on midwifery; prevention of blindness in the new-born; provisions concerning water supply and soil pollution; inspection of hotels, restaurants, meat and milk shops and dairies, and barber shops; abolition of part-time health officers; and adoption of the full-time county health officer plan with the county as a unit. The law further gives the state health officer, with the approval of the State Board of Health, the authority to remove inefficient county health officers.

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Georgia.—Through an appropriation incorporated in the general bill a sum of $20,000 is provided for the general training of public health experts, which will be carried on at the Medical College of Georgia, Augusta, Ga.

Michigan.—Senate Enrolled Act No. 78, before the legislature, is an amendment of the act of 1917 for the formation of health districts by contiguous townships and villages. The new version provides for the selection by ballot by the Board of Trustees of each village of a member of the district board of health to be a resident of the district, members of the township boards, common councils or boards of trustees being ineligible. The persons so elected shall constitute the district board of health. Tenure of office on this board is for two years or till a successor is elected. The organization of the district board is to be effected and officers are designated to be, a president and a secretary and treasurer. The board shall have oversight of the public health in the district, with authority to make regulations "not repugnant to the general laws of the State." These regulations are backed by penalties. The second section of the old act which has been amended outlines the technique of preparing estimates and the apportionment thereof among the townships and villages in the health district.

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Minnesota.—The new Childrens' Code prepared by the Child Welfare Commission which was appointed by Governor Bunquist in 1916 to study the social needs of children, incorporates many phases that should be of interest to all concerned in Public Health and Infant Welfare.

The commission proceeded on three fundamental principles:

(1) That a child is entitled to be born into the world sound in mind and body.

(2) That he is entitled to the fullest opportunity for growth and development consistent with his capacity and circumstances of life.

(3) That he should have protection against his own anti-social tendencies and correctional restraint when necessary.

As a protection against the ever increasing numbers of feebleminded persons that roam the community, reproducing their kind and filling our almshouses and jails, the law provides that such persons may be committed, through the probate court, to the state's care under compulsion and without their consent or that of their guardians. A feebleminded person is defined as one "so mentally defective as to be incapable of managing himself and his affairs and to require supervision, control and care for his own and the public welfare."

The second feature of the law is that patients are not committed to the already over-crowded institutions but to the care and custody of the State Board of control.

The law takes cognizance of the physically defective in a section that reads in part as follows:

"The term neglected child shall mean a child . . . where parents or guardian neglect and refuse, when able to do so, to provide medical, surgical, or other remedial care necessary for his health and well being." Cases where the parents through ignorance or stubborness fail or refuse to provide medical care for children badly in need of such care shall be brought to the judge of the juvenile court and the parents made to take proper action or the judge will appoint a guardian who will do so.

The law further requires that all maternity hospitals shall be licensed, that all births shall be reported to the State Board of Control as well as to the Department of Health and that if a child is illegitimate the fact shall be specifically noted.

Finally a joint resolution of the Board of Control and Board of Health was passed with view of recognizing the fact that breast fed babies stand a better chance of beginning a sound, healthy life than those who are artificially fed. The resolution reads to the effect that no patient shall be received by any person, or at any hospital or institution licensed by or under the supervision of either of the said boards on any basis other than that the mother shall nurse her own child so long as she shall remain under the care of said person, hospital or institution. Provided, that when nursing by the mother is impossible for any physical reason, exception to the above rule may be made by either board acting upon medical advice.

STATE HEALTH NOTES—GENERAL.

New Brunswick.—The Department of Health of New Brunswick is gradually getting into complete organization. With the exception of one county, the whole province is now under the immediate jurisdiction of subdistrict boards of health. These number fifteen in all, and each has a permanent staff, paid by regular salaries, fairly adequate to the location and work to be done. The work of these boards is supervised by their district medical health officers, each having charge of a section of the province known as the Eastern, Southern and Western Health Districts. During the short time these boards and officials have been in office, they have been doing satisfactory work which will improve in character as they become more accustomed to the situation.

Over the whole province, with the above noted exception, a system of medical examination of schools has been put into operation, there being about one hundred medical men engaged in this work, in the immediate employment of the various subdistrict boards. Each, like all the other members of the board staffs, is paid by definite yearly salaries, the old vicious and extravagant principle of remuneration by fees, having been entirely eliminated, except in emergencies when the staff requires to be suddenly but only temporarily increased.

In a very little while, what is hoped to be a complete and efficient system of collection of vital statistics will have been put in motion. This service, also, will be altogether under the control of the health authorities, and will be practically administered by employees (paid by salary) of the subdistrict boards. It will be under the general supervision and management of the chief medical officer of the Department at Fredericton, who, for the time being acts as registrar general for the province.

Having in view the entirely novel character of these services and the method of administering them, it is asserted that the machinery involved is already working with little friction. This is largely in consequence of its well-knit construction. The whole administration forms a department of the Provincial Government, with a minister of that government at its head, and with a chief medical officer as his executive. Each officer from the top to the bottom is a very distinct and responsible link or part of the whole machine, and, under the laws and regulations, each has his clear duty to perform with no possible doubt as to its nature.

(G. G. M.)

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Nova Scotia.—An international organization, the Massachusetts-Halifax Health Commission, recently incorporated under an act of the Provincial Legislature, has entered upon its duties. Its management includes nine of the leading men of the province under the chairmanship of Mr. C. Fred Pearson, namely, Hon. R. G. Beasley, vice chairman, and Mr. H. R. Silver, Mr. J. L. Hetherington, Judge W. B. Wallace, Mr. T. S. Rogers, K. C., W. H. Hattie, M. D., provincial health officer, H. A. Payzant, M. D., medical officer of health of Dartmouth and M. A. Macaulay, chairman of the Halifax Board of Health. The special province of the commission is to combat to the greatest possible extent the potential increase in disease, and the name comes from the fact that the funds will be distributed by the Massachusetts-Halifax Relief Commission, so efficient following the recent disaster. A health center is to be established in which there will be coöperation, health education, preventive effort and health administration, with the desire to coördinate helpful agencies here, dispensary advice and nursing care.

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Alabama.—This state has recently undertaken an educational survey at a cost of nearly $25,000. The legislature appropriated $10,000, and the United

States Bureau of Education did the rest. The Bureau of Education made the survey. It was done by specialists. There was a specialist in rural education, and a specialist in higher education, and one in administration, and one in home economics, and one in agriculture, and one in child health, and so on—some twenty or more all together. Their report is published by the Bureau of Education, Washington, and can be had for the asking.

In the survey Chambers County was selected for health studies. If you were to take the states of Georgia and Alabama and put them together, Chambers County would be almost in the middle. It was found that some three out of a hundred children had almost lost the vision of one eye through disuse.

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Georgia.—From January 1 to September 1, 1919, there were reported to the State Board of Health by the county health officers, city health officers, and the various private practitioners of the state, 769 cases of typhoid fever.

Possibly an annual average for the last ten years would have showed more than four times the number reported this year. There is no way of ascertaining the exact number for any previous year, as the Georgia State Board of Health did not begin a systematic collection of these reports of contagious and infectious diseases until January, 1919.

Several factors have been responsible for the decline in prevalence of typhoid fever; a large number of sanitary privies have been installed, vaccine has been distributed and administered, a regular system of health education has been instituted and many popularly worded bulletins have been distributed.

The Division of Venereal Diseases under Joe P. Bowdoin, M. D., is waging a vigorous educational campaign with very plain statements concerning the magnitude of venereal infection in Georgia. The authorities set it forth as a community problem, and as such it will have to be solved. It is your community problem, and upon the community comes the responsibility. Every community has its cases, has its problems.

Coming from the home communities, fresh from the home town, in the second million men examined, Georgia boys brought to the cantonments 10 per cent of venereal infection. In other words, one Georgia boy out of every ten had a venereal disease when he entered the army.

"With 300,000 of our people ill of venereal diseases," writes Dr. Bowdoin, "do you not think it is time to forever close all red light districts and hunt for all sources of infection?

"The clean life of our soldier boys while in the army with only one infection to 1,700 men per month should put us to shame."

Iowa.—The seventh annual session of the Mississippi Valley Conference on Tuberculosis was held at Des Moines, Iowa, on September 22–24, 1919, under the presidency of Sherman C. Kingsley, of Cleveland, Ohio. More than five hundred workers were present from the twelve states comprising the conference. Resolutions were adopted urging the necessity for uniform legislation for the control of tuberculosis; for more complete coöperation of governmental and extra-governmental agencies engaged in public health work; and the continued use of the Red Cross Christmas seal as a means of carrying on the anti-tuberculosis campaign. Officers elected for next year are Dr. John H. Peck, Des Moines, president; Dr. W. McN. Miller, St. Louis, vice-president; and Dr. A. T. Laird, Duluth, secretary-treasurer. Mr. Kingsley was elected to the executive council and Mr. Nels A. Nelson, Cincinnati, and Miss Charlotte Ludwig, Cleveland, were elected to the advisory council to represent Ohio.

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Michigan.—Lansing has prepared its plans for its new $75,000 isolation hospital. The structure is to be 100 feet by 50, three stories in height, of pressed brick and fire-proof construction. One of the features of the basement is a chapel in which the last rites may be administered. There will be four wards each on the first and second floors, the third floor being for the accommodation of the nurses. Some of the special arrangements worthy of mention are a separation of the receiving and discharging rooms, and observation corridors in glass through the wards. Through the latter it is proposed to give friends and relatives an opportunity to see their sick friends without the risk of infection.

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New York City.—Visitors to the International Exposition of Municipal Equipment, which has just opened in the Grand Central Palace, New York City, while it has to do with the larger equipments of cities in the way of streets, roads, engineering, water power and public utilities, will find in this group large divisions which have to do with public health. Sewage disposal is among these, milk pasteurization, a health center has been installed, there is the exposition of hospital equipment, and a considerable display of material touching on parks and playgrounds. The exposition is to be permanent and will be an opportunity not only for health administrators but for the officials in charge of the lower departments of municipal activity. William Parr Capes, director of the New York State Bureau of Municipal Information, is chairman of the advisory committee, while among the names well known to public health officers are, Matthias Nicoll, Jr., M. D., in charge of the section of health; Rudolph

Hering of New York City and Samuel Greeley of Chicago, of the section of sewage and garbage disposal and Myron Kesner of Dallas, Texas, of the section of parks and playgrounds.

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New York.—On August 12, 1919, an order was issued by Governor Smith under the provisions of Section 6 of the Public Health Law, requiring the State Commissioner of Health to investigate the pollution of the waters of New York Bay and Jamaica Bay and their tributaries by the discharge of wastes from manufacturing plants engaged in the manufacture or production of coal tar or aniline by-products or wastes, including gas houses, and to report before September 1, 1919. Some sixty-seven plants of the character mentioned were carefully investigated by the Engineering Division and a report was submitted to the Governor by the Commissioner within the time limit stated. The investigation developed the fact that the pollution of the bay responsible for the objectionable conditions of the bathing beaches complained of was traceable, largely if not wholly, not to the manufacturing plants referred to, but to oil tankers which transport crude and refined oil to and from ports in the vicinity of New York Harbor, or from industrial plants handling these oils. A further investigation of this phase of the matter was therefore made and a report covering the investigation was transmitted to the Governor. This report fully confirmed the findings of the previous report and pointed out that the control over this pollution is largely, if not wholly, in the hands of the Federal authorities.

Beginning with the 16th of September a series of sixteen conferences has been held for the benefit of the health officers of thirty-six counties. The sanitary supervisors have called their health officers to some central locality for a conference on health matters. The subject of health coördination committees in rural municipalities has been presented, rural public health nursing has received considerable attention and the question of the control of tuberculosis and venereal diseases has also been discussed. The subject of post-graduate course in public health work has been taken up; also industrial medical departments, and the new New York State Laboratory and its functions. The conferences have been generally very well attended. An innovation this year has been the invitation to local public health nurses to attend these conferences. The discussion in many instances has been very useful in clearing up problems which health officers have experienced in their localities. The conferences will be continued during the month of November for the health officers of the remaining counties.

Examination of sanitary conditions at the following state institutions has recently been made by the Engineering Division and reports containing recommendations for improvements transmitted to the institution authorities: Sing Sing Prison; House of Refuge, Randalls Island; New York State Training School for Girls, Hudson; Utica State Hospital; Syracuse State Institute for Feeble Minded Children; Auburn Prison; Buffalo State Hospital; Long Island State Hospital, Brooklyn; Kings Park State Hospital; Manhattan State Hospital, Ward's Island; St. Lawrence State Hospital, Ogdensburg; Eastern New York Reformatory, Napanoch.

During the summers of 1917 and 1918 the Amsterdam Anti-Tuberculosis Committee conducted two highly successful summer camps for the children of the city. The past summer the work was extended, through the consolidation of the city and county committees, to the children of the entire county. One hundred and forty-six children were given from two to eighteen weeks' outing, the time depending on individual needs. Practically all the children were actually running increased temperatures, and came from homes in which there had been deaths from tuberculosis. Children from every town in the county were represented, and it is hoped that the demonstration of the need of a permanent preventorium as part of the county hospitals needs, has been shown in such a way that it may soon be part of the institution.

A public health forum was recently held in Dobb's Ferry under the joint auspices of the local health department, the Westchester County Chapter of the American Red Cross, and the New York State Department of Health. Addresses were made by Dr. Robert Dennison, health officer, and Dr. P. H. Mason, sanitary supervisor, after which several health films were shown. The health exhibit was under the direction of Mrs. Harriet Smith and Miss Helen Hubbell assisted by the state and county public health nurses. As a result of the forum a little Mothers' League was formed.

Some two hundred cases of typhoid fever have recently occurred at Tonawanda coincident with the lowering of the intake of the public water supply system. Extended investigations are being made by the Division of Communicable Diseases and the Engineering Division in an effort to aid the city authorities in the suppression of the epidemic and the improvement of water supply conditions. It was learned by these investigations that a break in the intake pipe line had occurred near the shore allowing contaminated Niagara River water to enter the mains.

The annual convention of the New England Waterworks Association was held in Albany Sep-

tember 30 to October 3. The proceedings were opened by a paper on "The Supervision of Public Water Supplies in New York State by the State Department of Health," read by Mr. Theodore Horton, chief engineer in the department.

Jamestown organizations interested in better health and civic conditions have petitioned the Park Board of that city for the temporary use of the Gilbert homestead in Memorial Park for a health center. A health coördination committee has been formed at Hudson and has rented rooms which are to be used for a health center.

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North Carolina.—That the people of the state are in dead earnest in their desire to meet the requirements of the State Sanitary Law could be no better illustrated than by the type of sanitary devices being so generally favored. The State Sanitary Law is sometimes called the Sanitary Privy Law, but this is not correct, for the goal ultimately looked to in all cases is the sanitary sewer. A multitude of towns have decided that the best is none too good for them, and are therefore making immediate preparation for replacing all existing insanitary privies with modern sewerage. More than fifty towns in the State are known to have taken this action already, and many others are daily being added to the list. Sewer systems, of course, presuppose water systems. In many instances the water has already preceded sewerage, but in many others it is necessary not only to build the new sewers, but to install water systems as well, which makes the action of the towns not only more commendable, but likewise more valuable.

Gratifying results in the fight being waged against typhoid fever in North Carolina by the State Board of Health are shown in the number of cases reported for the past month. For that period there were 741 cases reported as against over 800 for the same month last year. The reports for the first half of August are still more encouraging. August is the worst month in the year for typhoid fever, the number of cases and deaths from this cause always showing highest for this month. But this year for the first fifteen days of the month only 291 cases were reported for the State as a whole, by far the best record since reliable statistics have been available.

In nine different sections of the state the people of North Carolina, on October 1, became acquainted with an entirely new experience. The State Sanitary Inspectors began their work in their respective districts on that date, and this was the first instance of exactly this kind in the history of the Nation. It happens that in this step, which is considered generally as the most progressive step ever taken by any state, North Carolina leads the way.

The excellent progress being made by the State Sanitary Inspectors is even beyond expectation, according to Dr. W. S. Rankin, who is the author of the state-wide plan. Dr. Rankin states that in his opinion one principle which is largely responsible for the hearty reception accorded to this law is the fact that the inspectors are not policemen and do not approach their work in any way suggestive of that attitude. It is at once apparent that the law itself meets the hearty endorsement of all thinking people. The inspectors are principally concerned in helping the people of each community to determine the best ways and means of following the specifications of the law in order to make it most effective.

Some of the advantages ensuing from the new sanitary law in North Carolina are these:

1. System takes the place of confusion and disorder, which would otherwise ensue.

2. The individual is relieved of the trouble of securing labor and material for the work required. He puts in his order with the city officials and is through with it, except for paying for actual cost of labor and materials.

3. All materials and labor are procured by the town at wholesale rates, which effects a saving of at least 25 per cent to the individual.

4. A far better quality of work is obtained in most instances.

5. The city loses nothing, but gains immense favor with its citizens.

6. It is the application of business-like principles to the necessities of a community, which, in addition to the foregoing, accomplishes the task in a prompt and decisive manner.

With but one exception, the towns approached with these suggestions have seized upon them and put them into practice. Indeed, a town which fails to see the wisdom of this course is painfully short-sighted, and its citizens should cry out against such an inexcusable disregard for their welfare.

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Ohio.—The extension course which is being held at Ohio State University, Department of Medicine, for public health officials, is well attended, more than forty persons having now enrolled. The object of the course is to prepare physicians and others interested in public health work, for the new positions to be provided by the Hughes act. On January 1, 1920, there will be nearly a hundred vacancies in the state for full-time health commissioners, at salaries ranging from $2,000 to $6,000. There will also be a large number of vacancies for public health nurses, and sanitary inspectors. The course

is being given by University teachers and public health officials, and consists of lectures and laboratory and field work for a period of three months. No degree will be given, of course, but candidates who take this course will be given credit for three months experience in public health work. Particular attention is being paid to public health problems of the state as a whole and of its political subdivisions. Nearly all those in attendance are physicians who aspire to become health commissioners of general and municipal health districts. The course is open still to persons having had at least one year's practical experience in public health work. There is no fee required. The courses will close December 12.

Up to date twenty-four clinics for the treatment of venereal diseases have been established in Ohio by the State Department of Health and United States Public Health Service in coöperation with local voluntary or official agencies. There has been recently a marked improvement in the venereal disease reports sent in by physicians, and this is because some use is now being made of these reports. A considerable number of persons in some of the cities of Ohio have been quarantined for venereal disease on the order of the State Health Commissioner. Dr. R. G. Leland, formerly of Michigan, is now Chief of the Bureau of Venereal Diseases, and every indication points to a vigorous campaign being waged in Ohio.

The Ohio State Department of Health has prepared a complete organization to deal with influenza should it recur this year. The names of two hundred Ohio physicians willing to undertake service as officers of the United States Public Health Service are being secured. The new district boards of health organized under the Hughes act have been advised that they will be used, if necessary prior to January 1, 1920, as rallying points of the activities of the counties they represent. Information as to the presence of influenza, any increase in the number of deaths from respiratory diseases, and any increases in the general death rates, is being collected from all municipalities in the state. So far no indication of a recurrence of influenza in epidemic form has been shown by the reports. This is precautionary, but the officials are not expecting a marked recurrence this year.

Nearly 20,000 bacteriological examinations were made by the laboratories of the State Department of Health for Ohio physicians during the year which ended June 30, according to the annual report of the laboratories, which has just been compiled. Examinations for the diagnosis of suspected cases of disease are made free for physicians who comply with the rules of the department as to methods of packing and mailing specimens. Diseases included in the scope of the laboratories' work are: tuberculosis, diphtheria, typhoid fever, malaria, rabies, syphilis and gonorrhea. A pamphlet issued for distribution to physicians gives full information regarding the laboratories.

Reports to the State Department of Health indicate that typhoid fever was less prevalent in Ohio during the past summer than ever before in the state's history. The total of reported typhoid cases from January 1 to October 1 is 1,700. During the corresponding months last year 2,387 cases were reported, and the average of the past five years for this period is 2,956 cases. Most of this year's typhoid cases came, as usual, in the summer months, the highest point being reached in September. A gradual decrease, extending until next March, will now take place if the normal typhoid trend is followed.

Reports from the Ohio tuberculosis hospitals present a picture of the activity in this field in the state. A bond issue of $20,000 was passed by the Montgomery and Preble County Commissioners of Montgomery County to be used in the erection of a new hospital building and to improve the grounds and remodel the present buildings at the Dayton District Tuberculosis Hospital. The present capacity is 42 patients and the bond issue will provide an increase in capacity to 75 patients. The annual report of the Dayton District Tuberculosis Hospital showed the average per capita cost for the year (April 1, 1918 to April 1, 1919) was $1.79 per day. The total number of patients receiving treatment during the year was 103. The cost per patient per day at the Springfield District Tuberculosis Hospital is reported by Dr. R. R. Richison, medical superintendent, to be $1.56 The Mt. Logan (Chillicothe) District Sanatorium, the latest addition to the tuberculosis hospitals in the state now, has 19 patients.

Following is the status of various proposed tuberculosis hospitals and sanatoria in Ohio: In Cuyahoga County ten new tuberculosis cottages at a total cost of $400,000 are to be added to the Warrensville Tuberculosis Sanatorium. In District No. 7, Belmont, Carroll, Harrison, Jefferson and Tuscarawas counties, action has been deferred for one year. In District No. 2 (Crawford, Hancock, Seneca, Wood and Wyandot Counties) a temporary organization of a joint board of County Commissioners of Seneca, Wood and Sandusky counties has been effected, looking to the immediate establishment of a district tuberculosis hospital. In District No. 6, three meetings have been held during the summer without action.

Rhode Island.—The fifth annual New England Tuberculosis Conference met in Providence, R. I., on October 16 and 17 with Dr. Charles V. Chapin in the chair. The program for progressive anti-tuberculosis work in New England as adopted by the conference includes: (1) Periodic physical examination of as many children and adults in a community as possible. (2) Greater emphasis on all environmental factors in the cause and cure of tuberculosis. (3) Heartier coöperation between public and private health agencies, and the fostering of the belief that there will always be a very important place and duty for private health agencies. (4) Stimulation of intensive instruction in tuberculosis for physicians, and the encouragement of an adequate community consultation service. (5) More thorough training for medical students and nurses in clinical tuberculosis. (6) Encouragement of the so-called "health center" movement. (7) Greater concentration of effort on the health and welfare of the child and child life, including an extension in the ideals to be reached through the modern health crusade. (8) Whole-hearted and whole-pocketed support of the national Red Cross Seal campaign. (9) Continued stimulation of public health nursing in general and tuberculosis nursing in particular.

Methods urged for educating the people of New England in the promotion of health and the curbing of tuberculosis include paid advertising, use of churches, new types of exhibits and community work in every city and town.

Dr. C.-E. A. Winslow of Yale University expressed as his opinion that "at a not distant day health centers will be scattered about the city just as schools are today—just as big and just as well-equipped. The great and coming thing is the health center—and the public health nurse."

Dr. Edward O. Otis of the Tufts College Medical School outlined a tuberculosis program: (1) education of the public in preventing tuberculosis; (2) physical examinations for all industrial employees; (3) discovery of all cases of tuberculosis; (4) opportunity for diagnosis of all suspects; (5) provision of sanatoriums and hospitals; (6) follow-up of those discharged; (7) open-air schools; (8) constant supervision by trained nurses of consumptives who remain at home; (9) dispensaries in all communities; (10) advice to arrested cases.

Dr. Allen K. Krause, editor of the *American Review of Tuberculosis*, urged municipal milk systems and the abolition of the private sale of milk as means by which tuberculosis can be reduced in this country. "Make your loudest demands for municipal milk supplies that are regulated basically like city water supplies. Pasteurize the milk as you filter the water." He said further that in spite of the anti-spitting laws, children playing on the highways are continually infected by sputum and that human sputum on our streets must go.

Dr. Donald B. Armstrong, assistant secretary of the National Tuberculosis Association, stated that the city of Framingham, Mass., is spending nearly $1.00 per capita for public health work annually whereas heretofore it only spent in the neighborhood of 39 cents. He said that out of a population of 17,000 nearly 12,000 have been examined.

The following committee was elected to make arrangements for the next annual convention in New England: Dr. R. Morton Smith of Providence; Dr. Stephen J. Maher of New Haven, Conn.; Dr. Edward O. Otis of Boston; Charles Tuxbury of Windsor, Vt.; Mrs. Frank Knox of Manchester, N. H.; and Dr. T. E. Hardy of Waterville, Me.



Texas.—The State Health Department comes into line with a new publication, the *Texas Health Magazine*, official organ of the Department. Its general appearance is very suggestive of that superb bulletin, *Public Health*, of the Michigan State Board. There is perhaps no quicker way in which to set forth the desire of Dr. C. W. Goddard and his associates, than to present the page which sets forth the program. Here it is:

The Health Department of Texas Wants:

To reach every home in Texas and educate the parents how to conserve their own health and that of their children.

To enlighten the minds of the children to the extent that they will become interested in sanitation and personal hygiene, and form habits of health and hygiene while their minds are yet plastic.

To reduce the heavy death rate among infants and children and reclaim them for lives of usefulness and happiness.

To furnish free eye prophylactic remedies for use in the eyes of new-born babies, and make the use of same compulsory.

To supply antitoxin, typhoid prophylactic, and smallpox vaccine free to all who are in need of same and not able to pay.

To have all school children examined for physical defects, and contagious and infectious diseases, and reports sent to parents with request that they call on their family physician and secure advice and treatment.

To see an *all-time* health officer and *public health nurse* employed in every county in the state.

To establish laboratories in eight or ten different sections of the state where Pasteur treatment may be secured without cost and all specimens submitted be examined free.

To know that every baby's birth has been properly registered with the State Registrar of Vital Statistics at Austin.

To get doctors to give prompt attention to the registering of all births and deaths and reporting of contagious and infectious diseases.

To raise the physical standard of health and efficiency and reduce the death and disability rate in Texas.

To be of real service to the people of Texas and build up a health department second to none.

The people are entitled to all of the above, and *it can be secured* by the *united and continuous action of all the people. Won't you promise us your support?*

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Texas.—Senior Surgeon J. H. White, and Consulting Engineer N. V. Perry of the U. S. Public Health Service, in company with Dr. C. W. Goddard, state health officer, Hon. C. M. Cureton, attorney general for the State of Texas, and Mr. V. M. Ehlers, sanitary engineer of the State Board of Health, have recently completed an investigation of all the property owned by the State of Texas along the Gulf Coast and the Texas-Mexican border used for quarantine purposes. After the inspection the two commissions agreed upon values and terms of transfer. By this act the State of Texas, on September 1, transferred all state quarantine activities along the Gulf Coast and the Texas-Mexican border to the U. S. Public Health Service.

Mrs. Ethel Parsons, for the past year director Bureau of Public Health Nursing, Southwestern Division, American Red Cross, accepted the appointment from the State Board of Health as field director of the Bureau of Child Hygiene, and entered upon her duties September 1. The Bureau of Child Hygiene is a new division in the State Health Department, having been created in April, and receiving appropriations for the next biennium from the Legislature which adjourned in July.

Dr. C. W. Goddard, state health officer, has prepared plans for a model hospital of medium size and cost, and has submitted same to the various counties of the state that are contemplating the erection of a memorial hospital. Several counties have already provided for the erection of such hospitals and have adopted the plan submitted by Dr. Goddard.

Drs. R. L. Howell and Douglas Largen have completed the indexical health survey work being conducted by the state.

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Wisconsin.—Two new divisions in the Wisconsin State Board of Health, authorized by the last legislature, have been organized. That on child welfare will be directed by Mrs. H. H. Morgan, Madison, formerly the woman member of the State Council of Defense. The division of sanitary engineering is in full operation. As chief sanitary engineer the board named C. M. Baker, who was assistant sanitary engineer of the New York State Department of Health for four years and later sanitary engineer with the United States Public Health Service at Nashville, Tenn.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh and P. M. Holmes.

Concrete Value of Physical Examinations.—The establishment, citing its experience, requests that its name be withheld. The physical examinations were conducted under the supervision of the Life Extension Institute and began in May, 1915. It was of optional type (70 per cent of the workers made use of it). Later it was made compulsory for new employees. Examinations were repeated in the three succeeding years. Out of 599 examined, only 5 were found to be normal; 594 required advice regarding their living habits or physical condition; 377 were directed to a physician, and of these latter, 317 were not aware of any impairment whatsoever. The employees who by investigation were carrying out instructions numbered 361; those carrying them out partially, 66; those making plans to do so, 12; those who had done nothing, 160. Hence 439 of the employees have, or will have been, benefited. Poor eye-sight, teeth, heart disease, and incipient tuberculosis are particularly mentioned. The expense is considerable, but as a business proposition it has paid. Before putting such a proposition up to the employees, they should first be thoroughly acquainted with the principles of the idea and the ultimate aim, thus to avoid opposition. That labor turnover, which is due to the desire to get another job, is not believed to be influenced.—*Modern Hospital*, July, 1919.

Government Regulations to Prevent Anthrax.—The Department of Agriculture and the Treasury Department issued a joint order, effective January 1, 1918, giving regulations governing the sanitary handling and control of hides, sheepskins, goatskins and other animal by-products offered for entry into the United States. Some of the regulations are printed in full.—Labor Review, *U. S. B. of L. S.*, Vol. IX, No. 1, July, 1919, pp. 180–184.

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Medical Inspection of Factory Employees.—The physician with a woman physician assistant devotes two hours each day to the observation of 3,000 employees. A physical examination and health inquiry is made of each new applicant for work. Most of the examination and inquiry is completed by the nurse who refers all obvious defects to the physicians. No persons are given work in any part of the factory unless they are physically fitted for such positions. Four afflictions prohibit employment: mental defect, epilepsy, acute venereal disease, and active tuberculosis. In the last year 137 persons with organic heart disease have been accepted. They are placed at light work and seldom given piece work, for this causes a nervous tension and affects the heart action. There were 263 employees belonging to tuberculosis families, and the nursing service is directly concerned in getting these employees out of direct contact with the active case at home. Employees who are neither late to work not absent except for sickness receive a bonus of 10 per cent of their wages each month. The home work of industrial nurses has an inestimable value. The company has maintained a relief association for two years, protected by physical examinations. In one department it costs $100 to teach a new employee, yet before the compulsory examinations before employing, twenty-six employees had asked for transfer to other departments. The work was strenuous and required those especially fitted. Most rejections occur among women. Applicants who have defective eye-sight are about 25 per cent; teeth, 40 per cent; tonsils, 25 per cent; and probably half of the women give a history of menstrual troubles and nervous disturbances. Goiter was also unusually common. Venereal infection is the greatest problem in industry. While infected applicants can be rejected, how to discover those in the employ is of more importance than the tuberculosis problem. Work restrictions appear to offer the best solution. Foremen are instructed to send a memorandum to the hospital when any employee shows any evidence whatsoever of sickness. Under proper conditions, employees are given leaves of absence for recuperation. The writer warns against employees getting quack care in the matter of teeth and glasses. Workers must be educated how to spend their wages to the best advantage. They should demand of the physician a competent examination and should learn that physical disability is a matter of neglect and ignorance and not a dispensation of Providence.—Maynard A. Austin, *J. Ind. Hygiene*, Vol. I, No. 2, June, 1919, pp. 103–106.

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The After-Effects of Gas Poisoning.—Happily, there is reason to think that only a very small percentage of the surviving gas casualties of the war will suffer from any permanent disability. The principal afflictions are chronic bronchitis, bronchiectasis, and pronounced emphysema. There is polycythæmia and victims have asthma and night terrors. Predisposition to disease other than tuberculosis does not appear to have followed. Effects on the kidneys are rare. Mustard gas was the cause of the largest number of sequelæ. Various digestive disturbances may persist as may heart symptoms.—*British Medical Journal*, May 10, 1919, p. 586.

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Human Health and the American Engineer.—Only certain points in this article can be touched upon here. Whipple finds that no satisfactory definition of an engineer, especially a sanitary engineer, is at hand. He considers him one who is trained fundamentally in the science and art of engineering but who has also been taught the principles of public health. "Knowing the science of public health, he practices the art of the engineer." The great problem regarding industrial work is to make it efficient by a better planning of details. A uniform working day is illogical. The laborer should get a fair opportunity to build a home as home life determines contentment. Homes begin to vanish when cities become congested. Because the laborer has not received a fair share of satisfactions of life, he has insisted upon increased wages. This has often gone too far. When a carpenter, etc., gets more money for his work than the engineer who directs the work, when the laborer earns more than the bank clerk or teacher, it shows that money rewards are not being given in accordance with what people contribute to society. Such things have not brought contentment to the laborer or capitalist. The engineer has the opportunity to be a great social force in the new democracy as he is in touch with both labor and capital. The laborer wants health protective measures as a matter of custom and right and not as a matter of benevolence and patronage. Labor unions in this country are far behind those of England, which

appreciate the importance of healthful conditions of work far better. American skilled labor must adopt a broad-minded constructive policy or the pendulum will swing far toward proletariat control and then swing backward to autocratic conditions. The main theme needed is coöperation between all who have to do with human health.—George C. Whipple, *Jour. Ind. Hygiene*, Vol. I, No. 2, June, 1919, pp. 75–84.

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Poisons in American Industries.—Inorganic poisons other than lead are discussed from the historical and incidence points of view as they appertain to American industry. Items given special mention are zinc, copper, brass, arsenic, antimony, mercury, carbon disulphide, phosphorus, and carbon monoxide.—Alice Hamilton, *Jour. Ind. Hygiene*, Vol. I, No. 2, June, 1919, pp. 89–102.

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Prevention of Lead Poisoning in the Manufacture of Storage Batteries.—The writer describes the continuous monitor type of buildings occupied by the Willard Storage Battery Company of Cleveland. The outside walls are 50 per cent glass. The heating and ventilating systems give six complete changes of air per hour when apertures are closed. The visitor is at once impressed with the absence of any congestion of men or material. The big hazard, lead dust, is provided against by apparatus especially designed to control it. Suction devices, semi-automatic machinery in place of hand labor, automatic hoppers, etc., comprise the health appliances. For that great hazard, dust on the floors and benches in certain departments, after much experimenting, it was found that a solution of $MgSO_4$ sprinkled on them had the power through its retention of moisture to hold down dust settlings. All refuse is kept in this non-dusty condition until it goes into the smelting furnace. Work rooms, rest periods, commissary department, the urging of milk drinking (at present it consists of $1\frac{1}{2}$ pints per day for every employee in the plant), ample sanitary facilities and special clothing without extra charge are among the working features. On employment, each worker is given a book of instructions and regulations, which books are printed in all languages necessary. The notices governing "Instructions to Employees on How to Prevent Lead Poisoning," issued by the Ohio State Board of Health, are read to the employees every month. Foremen are especially trained to keep a constan watch on the health of employees. All applicants are physically examined and the workers are reëxamined at least once each month. All employees are given free medical attention, irrespective of the cause of illness. If employees are off one day for any reason, they must go through the medical department before they are allowed to resume work. Employees are transferred from a lead to a non-lead department on the first suspicious signs of trouble. Employees transferred are given the same rates they had been getting. Wood lays down four principles for eliminating the lead hazard from this industry. His paper is introduced by a complimentary letter from Alice Hamilton.—W. H. Wood, *Proceedings of the National Safety Council*, 168 N. Michigan Ave., Chicago, 1918, pp. 628–632.

✻

Dust in the Lungs in Man and Horse.—Both man and horse work in coal mines, yet veterinary authorities agree that pneumokoniosis (dust-in-lung-disease) is rare in horses, even in mine horses. The horse breaths through the nose which stops nearly all the dust. The author found in his coal mine investigations that there were no lung ailments among horses, they were hardly ever sick, and their average working life was thirteen years. Horses stabled on the stale air side of the ventilation in mines deteriorated some but regained their health on changing stables back to the intake air-way. In ganister mines the health of the animals was excellent although lung diseases had been common in human beings. While experimentally the horse can be given pulmonary tuberculosis and develop copious disease, their freedom from the same in normal life is probably due to exclusive nasal breathing. An analogy well known to laboratory workers is seen in the white rat. The writer has been struck with the frequency of wide atrophic nose conditions (useless as a dust-filter) occurring in human cases of lung-dust-disease and miners' phthisis.—W. C. Rivers, *Lancet*, London, July 12, 1919, pp. 55–56.

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British Railway Strike Due to Eye Test Demands.—The North-Eastern Railway Company employees struck as a protest to the eye-sight test laid down. The National Union of Railwaymen finally agreed with the company that the Board of Trade should speedily set up a national eye-sight test, the strike ending on this understanding. The article states that since the safety of the traveling public is involved, the matter is clearly one for a government department to arrange. Standard vision is by no means always associated with a good light sense; it is absolutely essential that an engineer be able to detect signal lights readily on a dark night. The lantern test with the necessary colored glass seems to be the best color test devised. A national eye-sight test for railwaymen is about to be established. Tobacco blindness should be sought for by examinations of certain of the employees at least every year.—*Lancet*, London, July 26, 1919, p. 160.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Rapid Hemolytic Serum Production.—By the use of graded strengths of erythrocyte suspension, from 5 to 30 per cent, a saving in the mortality of rabbits used for the production of hemolytic serum by intravenous injection is effected over other methods in which higher concentrations are used. The use of these concentrations in the method gives a resulting serum of titer from 1: 3,000 up to 1: 7,000, which were higher titers than were obtained by other methods used. The titers obtainable with different antigens varied markedly. Thus sheep erythrocytes gave much higher titers than goat erythrocytes. The injection of human erythrocytes likewise did not give rise to so potent a serum as the injection of sheep erythrocytes.—Iyengar, *Ind. Jour. Med. Res.*, 6, 521 (1919); *Jour. A. M. A.*, 73, 793 (1919).

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Diphtheria Bacillus in Culture.—The growth of the diphtheria bacillus in culture is influenced by the hydrogen ion concentration of the medium. It is important, therefore, in adjusting culture media that the adjustment be made in terms of H-ion concentration. It has been shown that the diphtheria bacillus will develop on peptone broth of an initial reaction between Ph 5.7 and 8.7, and that when growth is started it may pass either of these limits. For the most rapid development of the heaviest pellicle, an initial reaction of Ph 7.3 to 7.5 is most favorable. The harvesting of strong toxins has taken place within a definite H-ion concentration range bounded approximately by Ph 7.8 and Ph 8.25. Reaction conditions alone cannot govern toxin production. Besides favorable reaction conditions it is necessary also that suitable food substances be present in the media. A peptic digest of meat having a content of polypeptides insoluble in 80 per cent alcohol but soluble in 50 per cent, similar to Witte peptone, has given favorable results over a period of two years.—John W. M. Bunker, *Jour. Bact.*, 4, 379 (1919).

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Loss of Complementary Power in Guinea-Pig Serum at Various Temperatures.—Sterile guinea-pig serum retains its complementary power for a longer time than is generally conceded. The rate of loss of complement in such serum is more rapid at first than later. The higher the temperature the more rapid is the loss of complementary power. At temperatures between 9° C. and 50° C. the rate of loss is regular and the complement is destroyed in accordance with a definite mathematical expression. —Joseph W. Bigger, *Jour. Path. Bact.* 22, 323 (1919).

*

Influence of Antigen Dilution on the Wassermann Reaction.—The turbidity of the antigen solution and the dilution of the antigen solution greatly influenced the results obtained with the Wassermann reaction with serums from syphilitic persons. For each antigen there seems to be an optimum turbidity and an optimum dilution. Antigen diluted too slowly or too rapidly lost in antigenic value. Alcoholic extract of human heart gave the strongest positive results in dilutions of 1 to 50, and alcoholic extract of beef heart and of rabbit heart gave the strongest positive results in dilutions of 1 to 100. With serums from non-syphilitic persons the results were uniformly negative.—E. H. Ruediger, *Jour. Inf. Dis.*, 25, 224 (1919).

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Serodiagnosis of Typhus.—Ribeyro reports that in the seven cases of typhus he has encountered, all the serums agglutinated the proteus X without exception, using a strain obtained from Paris. The range was from 1: 100 to 1: 10,000. Serum from guinea-pigs infected with typhus did not induce agglutination, and the tests were constantly negative with serum from nontyphus patients.—R. E. Ribeyro, *Cronica Medica (Lima)*, 36, 158 (1919); *Jour. A. M. A.* 73, 728 (1919).

*

Rapid Method of Preparing Antigens from Normal Heart Muscle.—Suitable antigens can be made by extracting normal heart tissues for a period from 1 to 3 hours with boiling alcohol in a reflex condenser. The value of these antigens compares favorably with those extracted by the usual methods. A primary extraction of the dried tissues with ether results in a slight loss of their fixing power, but yields extracts containing less anticomplementary substances.—E. E. Ecker and K. Sazano, *Jour, Inf. Dis.*, 25, 174 (1919).

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The Absorption or Saturation Test of Castellani. —The author in a critical review discusses the application of the absorption test of Castellani and its application in sero-diagnosis and in the recognition of bacterial species. This method of absorption of agglutinins has opened up a wide field of investigation and promises to be extensively employed by serological and bacteriological workers in the future. —F. E. Taylor, *Jour. of Hygiene*, XVII, Oct., 1918, 415. (*D. G.*)

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THE HISTORICAL DEVELOPMENT OF PUBLIC HEALTH WORK IN ENGLAND.

ARTHUR NEWSHOLME, M. D., K. C. B.

An Address at the Forty-seventh Annual Meeting of the American Public Health Association, New Orleans, La., October 27, 1919.

"There is much illness that might have been avoided if there had been an organized system of state medicine," says Sir Arthur Newsholme, speaking of England. He would give a freer hand to the health officer who measures up to the standard. England's chief defect lies in the existence of small and inefficient local health bodies.

THE subject is too large to be treated adequately in the course of an evening's address; and to bring it within manageable compass it is necessary for me to select my material rigidly and, so far as I can, to present this material in such a manner as will bring into relief its salient and most instructive features.

The evolution of public health in England proceeded by experimental steps, some mistaken and then retraced, others mistaken and not retraced, but steps oftenest in the direction of a complete service, which is the goal of our work.

The evolution has been a gradual growth arising out of realized needs, rather than a logical development based on general principles; and as politicians and legislators seldom take a wide outlook, or consider a specific proposal in relation to what is already being done, and to what is the desired goal, the English experience is especially instructive.

Public health work became an urgent necessity when men began to huddle in towns; and with the industrial revolution of the eighteenth and early nineteenth century the need for remedial action became acute. It is hard to realize that in the days of our grandfathers, the home was in most instances the unit of industry; and that in the eighteenth century communications between districts and towns were not more advanced than those of the ancient Egyptians. When, however, vast urban aggregations of population multiplied, travelling facilities rapidly increased, and the results of crowding, of contaminated water supplies, of intensive and widespread infection were seen in devastating endemic and epidemic diseases. Pov-

erty, squalor, dirt and their consequences were rampant in the towns, in which underpaid work people were exploited by masters, whose self-centered outlook had some share of justification in the political economy doctrines of the time, which regarded any interference with "freedom of contract" as useless or even pernicious.

The Scope of Public Health Work.

What is public health work? It is best defined by stating its object, which is to secure the maximum attainable health of every member of the community, so far as this can be secured by the authorities, local, state, or federal, concerned in any part of government, acting in coöperation with all voluntary agencies whose work conduces to the same end. The connotation of public health becomes wider year by year. It embraces physiological as well as pathological life; being as much concerned with improving the standard of health of each person, as with the prevention and cure of disease. Hence the importance of the "concentration on the mother and her child" (John Burns), to secure for them by all practicable means the conditions of complete health, which during the last twelve years has been a vital part of our public health work, and which is now being made to include not only all hygienic and medical help that may be needed, but also such domestic aid as may enable the mother to bring her children into the world and to rear them under advantageous conditions.

Public health embraces some eugenic elements, and may comprise more when eugenists have accumulated adequate non-fallacious and unbiased evidence on which to base valid conclusions. Already partial steps are being taken to secure the segregation and prevent the propagation of the feeble-minded and the insane; and in sorting out true heredity from congenital infection action is being taken to avoid congenital syphilis and to prevent the large number of stillbirths due to this race-poison.

Public health in the main is concerned primarily with the environmental measures calculated to prevent the attack of man by disease, whether pre-natal or post-natal. These measures may be industrial, as in the prevention of accidents, of dust, of noxious vapors; or sanitary, as in the control of water supplies, food, or milk, and in the removal of organic filth; or may be the application of preventive medicine, against infectious and non-infectious diseases; or therapeutic, consisting of the prompt and adequate treatment of all illnesses and the curtailment of the incompetence due to them; or educational, consisting, first in importance, in the training of medical practitioners, of public health officials, and nurses, and next in the education of the general public and especially of the children in our schools, in the science and practice of public health.

Advances in public health in many directions can only be secured by continued and extended medical research; and public health, therefore, has a direct and immediate interest in promoting and subsidizing such research.

These being the objects of public health, how far have we travelled towards securing the end in view? I do not propose to myself the pleasant task of showing to what extent the general death rate has been lowered, infant and child mortality greatly reduced, the duration of life extended, how typhus and smallpox have been almost eradicated, typhoid fever made a disappearing disease, and tuberculosis has become the cause of only half its former death rate. When inclined to indulge in such pleasant considerations, I recall the statement I have made elsewhere that one-half of the mortality and disablement still occurring at

ages below 70 can be obviated by the application of medical knowledge already within our possession.

Let me attempt the more difficult task of outlining the history of forms of administrative control of disease since 1834.

Reform In the Control of Poverty.

Poverty and disease work in a vicious circle in which cause and effect often change places; but it is certain that disease is one of the most fertile causes of of poverty, using the word poverty in the sense of privation of one or other essential of physical well-being.

For this reason, and because the half-starved form a constant social danger, poor-law administration long antedated public health administration. There is not time to follow the course of earlier poor-law administration, with its many and grievous abuses. The Poor-Law Amendment Act of 1834, gave the Central Government control over the systems of local relief, secured the combination of parishes into unions for poor-law relief,* and forbade out-door relief to able-bodied men. The creation of an organ of central control has led to the subsequent course of aid to paupers being determined in the main in London; action of poor-law guardians being subject to supervision by government inspectors, and to endorsement by the Central Authority. At first medical assistance under the reformed poor-law was made as deterrent as non-medical relief; and although there has been much improvement, chiefly on the institutional side, medical treatment under the poor-law has to some extent retained this deterrent element, and it has—excepting in the poor-law infirmaries of large cities—continued to be generally disliked by the people concerned.

* The importance of this is seen in the fact that there are in England and Wales 14,614 parishes, only 646 unions for the relief of the poor.

The first Central Poor-Law Authority was a Commission having no representative in Parliament. In 1847 it was replaced by a Board, the president of which was a member of Parliament and of the government. Here once for all Parliament declared its intention to maintain direct control of central official government, and in this and in all other departments has done so. If democracy is to be real—and we have no sound practicable alternative to it—evidently the representatives of the people must be masters of the administration; and English policy has never wavered on this point. After many years' experience of public life in England, I have no hesitation in saying that this principle is sound; that it insures progress which, although slow, is less liable to relapse than administration under autonomous expert officers or commissions, whether centrally or locally; and that any lack of progress that has been experienced in Central Government has been as much the result of inactivity and of lack of sympathy with social reform on the part of the permanent officials of government departments who have had access to their parliamentary chief, as of the inertia of politicians or their obstruction to reform.

Dissatisfaction with poor-law administration has steadily increased in the years since 1834, as the problem of the able-bodied pauper has diminished and the poor-law has been concerned more and more with the sick and infirm, the aged and children. These at the present time form some 98 per cent of the total population relieved. The fundamental principles of the poor-law were rightly attacked. It did not comprise elements tending to build up disabled families, or to prevent families from falling hopelessly and permanently into destitution. The law was administered almost entirely with a view to *relief;* practically not at all as a

curative agency. In medical language, symptomatic and not rational causal treatment was the rule.

In medical relief, poor-law administration has been a constant struggle between increasingly humane treatment and the conception that the pauper's position must remain inferior to that of the non-pauper; an important principle when applied to the able-bodied adult who has drifted into willing dependence; absolutely mischievous when applied to sick persons, and to dependent women and children.

The general dissatisfaction with poor-law administration led to the appointment of a Royal Commission on the Poor-Laws, which after several years' deliberation presented in 1909 a majority and a minority report. Both these reports recommended the abolition of boards of guardians, and the transfer of their duties to the 144 largest public health authorities in the country (county councils, 44, and the councils of county boroughs, 82), and the abolition of the general workhouse. The majority report would have continued the poor-law guardians as a committee of the new authority, the minority report proposed to distribute the duties of the guardians to different committees of the public health authority; thus medical treatment to the Public Health Committee; the care of lunacy and feeble-minded to the Asylum Committee; care of children to the Education Committee; vagrants, etc., to the Police Committee, while a special committee would concern itself with all questions of monetary assistance.

A compromise between these two schemes has recently been arranged; and when the new Ministry of Health, which will combine public health, poor-law, insurance and educational medical work in one department, has found time to do urgently needed work, the above indicated reform may be hoped for, along with the equally needed reform of local Public Health administration, and the abolition of a large number of the smaller and less efficient sanitary authorities. With these reforms will come much needed decentralization of poor-law work. Good work in all respects cannot be secured if the Central Authority concerns itself, as at present, in minutiæ of local administration, and has no time to devote itself to the larger problems, and to the task of bringing indifferent, chiefly smaller authorities up to the standard of efficient local authorities. A large portion of the expense of local poor-law administration is borne by the central exchequer, and this money, if properly applied, will give the necessary leverage for reform, while leaving progressive authorities, and especially the authorities of large towns, freedom to experiment and advance.

Reform in Industry.

The industrial revolution meant the subjection of large masses of working-class families to evil conditions of housing and work in crowded and insanitary dwellings and factories. The public conscience first rebelled in regard to boarded out and apprenticed pauper children; and the first Factory Act in 1802 concerned itself with them; and with this act emerged the germ of machinery for securing compliance with the law, magistrates and clergymen being appointed as inspectors under the act.

The act was largely futile; but it meant the beginning of the gradual breaking down of *laissez faire* doctrines; and there followed a more widely operative Factory Act in 1833, restricting hours of labor of children, and initiating professional inspectors controlled and paid by the government. In 1842 the underground employment of women in mines was forbidden; and there have followed at intervals since then numerous factory and allied acts, restricting the

duration and conditions of work of women and children, improving rules as to sanitation, ensuring systematic inspection by government inspectors, and constituting a far-reaching system of supervision and control.

The inspectors, on whom falls the burden of ensuring compliance with the Factory Laws and regulations made under them, are controlled by the Department of the Central Government known as the Home Office; their work has been well done, and the conditions of factory and workshop life have greatly improved. Some portion of the sanitary supervision of these workplaces falls on the local Sanitary Authority; but in the main the system is one of absolutely centralized government control. This secures almost complete absence of improper influence of interested local persons, whether masters or workmen; but it is arguable that this system should be replaced by a localized system, the inspectors being officers of the 144 larger authorities. These local officers could be placed in direct touch with the Home Office or the Ministry of Health and with the central staff of inspectors having special expert knowledge in the different branches of industrial work.

Public Health Reform.

Public Health reform was a direct consequence of the Poor-Law Amendment Act, 1834. Anxious to diminish the enormous expense of the existing poor-law, and realizing that a large share of the sickness was due to fever and other illnesses, the commissioners administering this act, set on foot surveys and inquiries and the reports which followed revealed a state of things urgently calling for sanitary reform, in the interest of national economy as well as of health. "An act for promoting the public health" was passed in August, 1848, which created a General Board of Health consisting of four members and a secretary. These commissioners (among whom was Edwin Chadwick, former secretary of the Poor-Law Board) initiated a system of procedure, which was largely on the lines of poor-law action, and which involved constant pin-pricking by the Central Authority of the grossly indifferent local authorities. The commissioners were more zealous than discreet; and after six years they were no longer tolerated. At that time centralization was as much a bogie as socialism has become in more recent years. Parliament and the localities represented by its members doubtless feared the reforming activity of Mr. Chadwick and his colleagues, though they sheltered themselves behind their exaggerated fears of bureaucracy and centralization.

A new board replaced the old, parliamentary in character, its president being a member of the government.

This repeated, so far as concerns parliamentary headship, the story of the Poor-Law Board, and established once more the theory of the administrative control of the representatives of the people.

Nor, although the change meant for the time serious slackening in sanitary reform, can objection be taken to this. In a democratic government, the elected representatives of the people must take first place; and it is the rôle of officials to educate them in the direction of needed reforms. Reforms which do not carry public opinion with them are not likely to be permanently successful; and whether in administration or in legislation attempts to side-track or ignore this fact are not likely to be permanently effective.

When the Local Government Board was formed in 1870 a second opportunity was lost of developing public health administration on lines which, we now know, to be the best adapted for a com-

plete service of preventive medicine. The first lost opportunity was when sanitary authorities completely separate from poor-law authorities were created for administering the sanitary laws. Probably this arose from Chadwick's despair of getting effective sanitary reform from poor-law guardians; but the creation of separate authorities was scarcely consistent with the fact recognized by him that pauperism is largely, if not predominantly, a question of sickness; and the less recognized fact that its treatment forms an essential part of prevention. It was recognized that the care of the sick was largely idle until the unnecessary causes of disease had been cut off, but not that the adequate treatment of sickness is an important means of preventing it or of curtailing it. Rumsey, in his "Essays in State Medicine," 1856 (pp. 190, 277, 282) stated the unrealized possibilities of the poor-law medical officer's domiciliary attendance on paupers in the following words:

"There are much higher functions of a preventive nature than those of a mere 'public informer' which the district medical officer ought to perform. He should become the sanitary adviser of the poor in their dwellings . . . he (should) be in a peculiar sense, the missionary of health in his own parish or district, instructing the working classes in personal and domestic hygiene, and practically proving to the helpless and debased, the disheartened and disaffected, that the state cares for them—a fact of which, until of late, they have seen but little evidence."

In the result the *adhoc* poor-law authority did not absorb into it the newly created municipal and urban and rural sanitary administration, but continued on its separate path.

Simon in 1868 had urged the inadvisibility of continuance of *adhoc* authorities, and had urged that, at least, sanitary authorities should be made coterminous in area of administration with poor-law districts. His advice was not adopted, and there followed years in which sanitary authorities were allowed to subdivide areas, until the total number became 1,807 instead of 635, the number of poor-law authorities; and in which they concerned themselves chiefly with nuisances and water supplies and with inadequate provision for the prevention and treatment of infectious diseases. With the creation of county councils and the more complete autonomy of the councils of county boroughs, the large centers of population developed and improved their sanitary administration more rapidly; and it became practicable to undertake every division of sanitary work on an efficient scale. Although much remains to be done, it can be claimed that in our larger towns, containing more than half of the total population of the country, the public health work in nearly all of its branches is of a high order. It would have been still more efficient had the poor-law guardians been merged in the Town Council, and the relationship between the school medical service and the other branches of the public health service been closer than has been the case.

What is now needed is that the defects just named should be made good; that more complete autonomy should be given to the authorities which come up to a required standard, and that especially they should have greater freedom in developing local possibilities of improved administration. Central grants in aid of local sanitary administration are steadily increasing. Already the government pays one-half of local expenditure on a large program of maternity and child welfare work, one-half of the expense of local tuberculosis work, and three-fourths of the expense of local work for the diag-

nosis and treatment of venereal diseases and for propaganda work concerning these. These grants should be the means of greatly increasing good local administration, but if,—this is improbable,—they curtail local experimentation and extension, and bring local Public Health administration into anything approaching the subservience of local poor-law administration, the value of these subventions will be doubtful.

Education Authorities and Health.

The national system of compulsory elementary education inaugurated in 1870 has had valuable indirect influence in promoting the public health. Apart from the beneficent effect of education, the steadily increasing pressure on children to come to school in a cleanly condition, the stimulus of emulation in tidiness and cleanliness, have done much to improve the home conditions of the people. After the South African war much attention was drawn to the large number of recruits rejected owing to physical disabilities; and an Inter-Departmental Committee reported *inter alia* in favor of a system of medical inspection of scholars in elementary schools, which had often been urged by hygienists. Observations made in Glasgow and Edinburgh by Leslie Mackenzie did much to draw attention to the physical defects in Scottish school children. In 1907 the Board of Education acquired power to make provision through the local education authorities for the medical inspection and treatment of school children. At first little more than inspection of scholars was undertaken, a large number of defects of sight, hearing, parasitic conditions, as well as malnutrition and actual disease being discovered. Gradually some items of treatment were undertaken at school clinics, or at hospitals or centers subsidized by the education authorities; though the amount of treatment is still small compared to the defects discovered and not otherwise treated.

But there now existed in every locality three authorities concerned in the treatment of disease:

1. Poor-law guardians—treating all forms of illness in paupers, at home and in institutions.

2. Public health authorities—undertaking preventive measures against disease, and treating fevers, tuberculosis, and occasionally other diseases in institutions; and more recently providing nurses at home for certain conditions.

3. Local education authorities—concerned in treating certain ailments in school children.

Centrally two government departments were supervising this work, and subsidizing it to some extent from government funds; and the poor-law medical work and public health medical work were supervised by two divisions of the Local Government Board acting in almost complete isolation. More recently Parliament has permitted the Board of Education to give grants in aid of schools for mothers, and allied institutions for the care of children under school age; for which institutions, substantially, the Local Government Board in other instances was giving grants.

The separation of educational medical work from Public Health medical work was contrary to the first principles of sound administration, although it is possible that, owing to the inertia in some public health circles, this separation at first favored rapid advance in school hygiene; just as the early development of public health apart from poor-law administration was probably more rapid than could have been expected from centrally ridden local authorities, concerned chiefly in keeping down the poor rates.

The Adhoc Vice.

But in both instances there was an offence against the first principles of good administration, which require that when a special function is to be undertaken it shall be undertaken by one governing body for the whole community needing the service, and not for different sections of the community by several governing bodies. Medical treatment is needed for school children and for the poor generally. Why separate this into two administrations? Hospitals are required for paupers with tuberculosis, and for non-paupers with tuberculosis. Why have two authorities for this work? The separate existence of Education and Poor-Law Authorities quâ medical attendance on those needing it erred, not only in this fundamental respect, but also because neither of these authorities has the preventive facilities and powers possessed by Public Health authorities, who were also partially engaged in the treatment of disease.

The inveterate tendency in the past has been to create a new authority when any new work was inaugurated, this authority then fulfilling all purposes for a special portion of the community and thus necessarily reduplicating the staffs of other departments of local or central government. The crowning instance of this recurring instance of legislative myopia is seen in the case of the National Insurance Act under which has been provided an imperfect and unsatisfactory domiciliary medical service for one-third of the entire population of Great Britain, when by combining and extending the medical forces of existing departments of the state, a satisfactory service for all needing it would have been secured. The axiom that "the object of community service is to do away with group competitions and bring in its place group coöperation or team work" (Goodnow) is especially applicable to all public health and medical work; and its spirit is infringed by the existence of separate, sometimes competing, occasionally conflicting, services under separate local and central control.

Principles of Local Government.

The preceding considerations bear on the perennial problem of efficient government, local and central. There are three functions to be performed in government, legislation, determination of administrative policy and extent of work, and the actual executive work. In England legislation is in the hands of Parliament; but large cities not infrequently obtain special legislative power to meet local needs; and by this means have succeeded in advancing local efficiency above the average standard. Local authorities, furthermore, have the power to make regulations and by-laws for special purposes, subject to the approval of the Central Authority.

In settling the details of local administration, the elected representatives of the public are supreme. They meet in council, and action is taken on a majority vote. The councils of counties and cities, and even of smaller municipal boroughs divide themselves into committees, consisting of about a dozen members, elected by vote of the whole council. The chairman or mayor of the council has no special power, except that he may give a casting vote.

The chief defect in local sanitary administration in England is the continued existence of a large number of small and relatively inefficient local authorities. The larger authorities as a rule do their work well, and politics enter but little into elections. Official posts are not vacated with changing councils. These councils are approximating to the ideal

of a complete local Parliament dealing with all governmental concerns, and to the further ideal that each unit of government should be large enough to minimize the influence of local interested motives, and to undertake each department of municipal work on a considerable scale. The local Parliament has committees concerned with police, finance, public health, education; and when the urgently needed poor-law reforms are made, and when the Education Committee hands over its medical work to the Public Health Committee, the ideal will become a fact.

Power is already given to coöpt by vote of the council a few persons on to some of these committees who are not members of the council, from among men or women having special knowledge of the committee's work; and the exercise of this power has been found to be useful.

But in each committee it is the direct representatives of the public who decide points of policy and settle the main outlines of administration. There is growing up a tendency to appoint not only central but also local advisory committees, consisting of special groups respresenting professional or trade interests. Thus a medical committee may be consulted on medical proposals, and so on. This procedure is still in the experimental stage. It will probably prove permanently useful, as voicing the occupational aspect of any proposed work of the municipality; but it will need to be kept to its strictly consultative limitations, and the responsibility of the council as representing the combined wisdom or unwisdom of the entire community must be maintained.

All substitutes for government of the people by the representatives of the whole population are open to objection. They do not contain within them the elements of permanence. If there is a corrupt council, the remedy is not its supersession by an independent executive. Such an executive is the abrogation of popular government. "Good and efficient government is possible under almost any form of organization. More depends upon men than devices." "But—if we believe that the functions of deliberation or determination of municipal policy and of administration or the execution or carrying out of that policy should be kept distinct, we cannot avoid the conclusion that a city council is a necessary part of the municipal organization." (Goodnow: Municipal Problems, p. 226.)

Each committee of the local council is advised by the county clerk or town clerk on legal and administrative matters; and the medical officer of health and other expert officers, like the legal adviser, in nearly every instance, hold office during good behaviour. Under the above arrangements the elected members and the officials are kept in touch with each other. The latter's recommendations and actual work must be approved by the former; and this works well under the system of determination of policy by committees, subject to confirmation and control by the entire council. The motive power is public opinion. Good work cannot for any prolonged period go beyond what the public demand; and the work of officials is one of constant education of their immediate masters the Council and of their ultimate masters the public.

The Training and Tenure of Office of Medical Officers of Health.

Every sanitary district is required to appoint a medical officer of health and since 1888 every medical officer of health for a district with a population exceeding 50,000 must have a special diploma in public health. The enforcement of this requirement has done much to raise the standard of work of these officers. It is

significant, furthermore, that while in 1873 the percentage of the total population of England and Wales having whole-time medical officers of health was only 20.6, it had increased to 61.4 per cent in 1911. In the metropolis, in the whole of Scotland, in every English county (44) and in many other districts these officers possess security of tenure, in the sense that they cannot be removed from office without the consent of the Central Government, which usually pays half their salaries. Even without this safeguard, removal from office by the local authority is rare; but there has been long delay in securing the further reform that in all areas the medical officer of health should be able to perform his difficult and sometimes obnoxious duties without fear of removal from office, or of reduction in his emolument, except as the result of deliberate action on appeal to a central authority.

When pensions can be earned by medical officers of health and by all medical men on the public health staff their position will become more attractive for men of good standing; and this reform has become more important, in view of the steadily increasing complexity of the medical work now undertaken in a large public health department. It includes *inter alia* the following activities:

Superintendent Medical Officers of Health.
District Medical Officers of Health.
Tuberculosis Officers.
Medical Officers of Maternity and Child Welfare Centers.
Medical Officers of Venereal Disease Centers.
Medical Officers of Fever Hospitals.
Medical Officers of Tuberculosis Sanatoria and Hospitals.

The development of a graduated public health medical service, in which each physician employed will be able to develop his own special abilities, will be easier when to the above list is added the work of

District (late poor-law) Medical Officers.
Medical Practitioners, attending insured persons and such other persons as are treated at the expense of the State.
Treatment Centers, for Special Conditions (ear, eye, throat, gynoecological and other special departments).
Hospital Treatment for General Diseases.

That there will be development in these directions when the tangle caused by the National Insurance Act of 1911 has been unravelled, there can be no doubt.

The National Insurance Act and Public Health.

I have in another address expressed my opinion as to the additional tangle introduced into the central and local government of the United Kingdom by the National Insurance Act of 1911.

The failure of the British government to act on the recommendations of the Poor Law Commission of 1909 was a serious misfortune to public health. Sickness is the cause of a predominant part of our total destitution, and to allow the continued separation of administrative action respecting these two problems is inconsistent with a full measure of success. Political circumstances, however, led to the adoption of a course which medically ran directly athwart the course of needed reform.

The National Insurance Act was passed, placing one-third of the total population (all employed manual workers and other employed workers with an income below £160—since increased to £250)—under an obligation to pay 4*d* weekly (women 3*d*), 5*d* being contributed for each person by the employer (3*d*) and the state. In return each worker received

a money payment weekly during illness, attendance by a doctor, sanatorium treatment for tuberculosis, and a maternity benefit on the birth of a child to his wife (30*s*, or if the wife also is industrially employed an additional 30*s*). The medical benefit is limited to such domiciliary attendance as a medical practitioner of average ability can furnish. It continues the old conception of private medical practice, and allows the public to remain obsessed with the notion that satisfactory medical care consists in a "visit and a bottle." No provision is made for pathological aids to diagnosis, beyond what is already provided by public health authorities. No nurses are available for serious cases; the insured person is not entitled to surgical operations, when needed, except of the simplest character. With few exceptions, no appliances are provided; and the treatment of special diseases of the eye, ear, nose and teeth is commonly excluded. No hospital provision whatever is made except for tuberculosis.

The contract system of medical practice has been accompanied by a serious amount of lax certification of sickness. The Sanatorium Benefit is unnecessary, as soon as the duty of public health authorities to provide treatment for tuberculosis is declared obligatory. It is already very largely provided. The Maternity Benefit is entirely unconditional; there is no guarantee that it is devoted to the welfare of the mother and infant. It needs to be supplemented or replaced by the arrangement for providing nurses, doctors, midwives and domestic assistance in process of development by public health authorities.

In short, there is no justification for providing medical services, preponderantly at the expense of the state (contributions by employers are a form of taxation), which are limited to a favored portion of the total population, and which do not benefit all in need of these services.

The principle of monetary insurance against sickness and disability is thoroughly sound. It forms a praiseworthy and valuable provision against future contingencies. Insurance, however, is not synonymous with prevention as is too often suggested. In England insurance has been an actual impediment to public health work; though it might have gradually become a useful auxiliary to it, if otherwise organized, and especially if the creation of independent insurance committees, representing interests to a preponderant extent, had been avoided. But any medical service needed for purposes of insurance should not form part of the insurance system. Medical aid is needed for a large section of the population who are unable to afford deductions from their wages, or who have no wages. It is needed for wives and children as much as for the industrially employed head of the household; and it is needed for many others who are excluded from the scope of the National Insurance Act. Only when the medical is separated from the insurance service, and when the medical practitioner, as far as practicable, is made independent of the patient who desires too facile a sick certificate, will good medical work and sound sickness insurance be secured.

General Summary.

The preceding review of the history of public health in England is necessarily fragmentary. It does not include for instance a discussion of the relationship of the medical profession to public health authorities. On this I content myself with repeating my oft-stated opinion that, until every medical practitioner is trained to investigate each case of illness from a preventive as well as from what is often rather a pharmaceutical than a

really curative standpoint, until a communal system of consultant and hospital services independent of any insurance system is made available for all needing it, and until every medical practitioner is related by financial and official ties to this communal system, full control over disease,—to the extent of our present available medical knowledge,—will not be secured.

The communal system will include not only the provision of domiciliary nurses for all needing them, but also a greatly increased staff of public health nurses engaged in educational supervision in connection with the work of the communal services and of each individual practitioner. Such a system will repay the community manifold in improved health and a higher standard of happiness and well-being.

If objection is taken to such wide sweeping proposals, let me remind you that free communal services of sanitation and education are already provided; and that the personal care of health is of equal importance with these. All will agree that a large proportion of the population cannot afford to pay individually for medical attendance and nursing under present conditions, still less for the consultant and hospital services which advance in medical service has rendered indispensable. There is always present in our midst a large mass of illness which might have been avoided or curtailed had there been an organized system of state medicine.

Lest any should be alarmed as to the possible consequences of the coöperative provision on such a scale of this primary need of humanity, let me remind you that coöperative medical aid differs from financial aid in an essential particular. It does not create a demand for further aid, but is always engaged in diminishing this demand. Dependency on financial assistance is liable to continue indefinitely; much wants more. This result of medical aid is almost inconceivable.

The Rev. Dr. Chalmers of Glasgow said early in the last century: "Ostensible provision for the relief of poverty creates more poverty. An ostensible provision for the relief of disease does not create more disease."

Dr. Chalmers was opposed to the giving of any domiciliary assistance from rates or taxes, and he organized his parish so that every needy person was adequately helped out of charitable funds. But he advocated extended hospitals and other medical assistance for the poor; and until this is done, apart altogether from any system of insurance, and as a complete measure on the lines of our educational system, we cannot say that all that is practicable has been done to secure the physical well-being of our fellow-citizens.



The New Orleans papers are coming right along in the Journal in a continuous procession of good health administration good things. In January, look for "Administrative Handling of the Drug Addict" by E. S. Bishop, M.D., "Practical Types of Sanitary Privies" by C. W. Stiles, M. D., and others.

ADMINISTRATIVE MEASURES AGAINST INFLUENZA.

ALLEN W. FREEMAN, M. D.,
State Commissioner of Health, Columbus, Ohio.

Read before General Sessions, American Public Health Association, at New Orleans, La., October 28, 1919.

Science has not yet revealed any successful specific measures against influenza. Isolation and popular education are the only justifiable general methods known at present. Energies must be directed to preventing the complications rather than to preventing influenza. Research is needed and health officers can help by securing accurate records. : : : : : : : : : : :

ADMINISTRATIVE measures for the control of any disease depend for their success upon the possession of specific knowledge regarding that disease. This specific knowledge may make it possible for us to control the disease either by raising the mass immunity of the population above the point of infectibility, as in smallpox; by breaking one or more links in the chain by which the infection travels from patient to victim, as in yellow fever; or by a combination of both procedures, as in typhoid fever. Sanitarians have, however, of necessity, when facing the dire need of formulating a programme against a disease regarding which specific knowledge is not available, formulated so-called "general measures of control," hoping by doing many things to hit upon the necessary specific thing. Sanitary history does not record the success of a single one of the many such attempts that have been made. This is not surprising, since every sanitarian knows that even when applying specific knowledge, only the most painstaking attention to minutest details of procedure will produce recognizable results. Such results cannot be produced when a procedure is carried on along with many similar ones, without special emphasis and without recognition of its special importance as compared with others so applied.

No one can seriously contend that we have in our possession the specific knowledge necessary to enable us either artificially to raise the mass immunity of the population against influenza, or to break the chain of infection from patient to victim. Lacking such information we have formulated, more or less consciously, certain hypotheses regarding the disease and have put into effect certain procedures based on them.

The hypotheses on which we have operated up to this time may be stated about as follows:

1. Influenza is caused by a specific living virus. This is based on analogy only and there is no experimental evidence confirming it.

2. The portals of entry of this virus are the nose and the mouth. This hypothesis is based in part on analogy and in part on clinical and pathological evidence. It is not confirmed by experimental evidence.

3. This virus is contained in the secretions from the nose, mouth and respiratory tract. This hypothesis is based on analogy and on certain suggestive epidemiologic facts. Experimental evidence has so far failed to confirm it.

4. The virus is communicated by transference of spittle and nasal secretion through direct or indirect contact, and by droplet infection from coughing and sneezing. This hypothesis is based on analogy and is a corollary of hypothesis three.

These hypotheses constitute the basis of such preventive measures as have been proposed. No convincing experimental evidence has been advanced in support of any of them. Any, all, or none of them may be true.

Upon these hypotheses as a basis, various preventive measures have been proposed of which the most important are as follows: Isolation of patients; prohibition of public gatherings; masking of the general population; general vaccination with anti-streptococcic or mixed vaccines, and general educational propaganda designed to minimize transference of nose and mouth secretions by direct or indirect contact or by droplet infection.

Isolation of Patients.

The effectiveness of isolation in the control of any disease depends upon several factors, even assuming that all known cases are promptly reported and promptly and effectively isolated from all infectious contacts. The two most important of these factors are the possibility of prompt and accurate diagnosis of clinical cases, and the ratio of abortive and unrecognized cases to those clinically recognizable. This may be expressed mathematically, assuming perfect isolation of known cases as follows:

$$E = \frac{tc}{TC}$$

Where E is the efficiency of quarantine, T the average number of days of infectiousness of a case, t the average number of days of effective isolation, C the number of infectious persons (abortive and carrier cases) in the community, and c the number of recognized cases.

In influenza, the available epidemiological and clinical information indicates with considerable certainty that diagnosis, except in typical cases, is very difficult and that the patient is infectious both before and after the period for which he is bedfast. The number of unisolated infectious days of known cases is, therefore, probably large and the ratio of abortive and carrier cases to known cases also probably high. In influenza, therefore, E is not high. Experience in army camps and in civilian practice during the epidemic of 1918–1919 bears out this view.

At the same time it must be recognized that isolation of known cases is a simple and inexpensive procedure, which does not inconvenience the general public, makes for the comfort and well-being of the patient, and should be employed even though its efficiency is not high.

Prohibition of Public Gathering.

Theoretically, at least, the rate of spread of an epidemic depends upon the number of contacts per day per unit of population between infectious persons and non-immunes. In the absence of other measures, however, and assuming the persistence within the population of carriers of virulent infection, the effect of restrictions of this character is to delay and not to prevent the spread of the epidemic. Experiences in army camps where prohibition of public assemblage was made absolute, and where other methods of restriction of individual movement were carried far beyond what is possible in civilian communities, were not productive of positive results.

In view of the fact that even complete immobilization of the population would be effective only for the time during which it was actually in operation and of the further fact that the epidemiologic evi-

dence points convincingly to the fact that the virus of the disease is almost universally disseminated before the existence of an epidemic is recognized, it is hard to see how prohibition of public gatherings justifies the economic loss and personal and public inconvenience resulting from it.

General Wearing of Masks.

Theoretically, the wearing by all persons, continuously, of a mask of sufficient thickness and so constructed so as to filter all the respired air, without touching the lips, will prevent droplets infection. In practice, none of these conditions is even approximately fulfilled, and like complete immobilization of the population, the measure is effective only for the time it is actually in operation.

The widespread dissemination of infection before the measure can be made effective also militates strongly against its success. In actual practice under military conditions certain observers are convinced that some results were obtained, but no definite statement has been made as to its success in civilian populations.

The hypothesis on which the use of the mask is founded has no experimental evidence to support it, and in the absence of any tangible results from the extensive practical experiments the procedure would appear unjustifiable.

Inoculation of the General Public with Anti-streptococcic or Mixed Vaccine.

The production of an artificial immunity against influenza by the use of a suitable vaccine to be administered to the general public is a most hopeful line of activity. The practically unanimous verdict of laboratory workers, however, is to the effect that the true virus of influenza has not yet been isolated and that such a vaccine cannot yet be prepared.

Various workers have produced vaccines of one kind or another, in behalf of which extravagant claims are made. Where carefully controlled observations have been made, however, these claims have not been borne out.

Until additional evidence is produced regarding existing vaccines or until a truly specific vaccine is developed, general vaccination cannot be considered a sound administrative procedure.

General Propaganda.

The teaching of habits of personal sanitation regarding the secretions of the nose, mouth and respiratory tract is never out of place. The importance of such habits in the practical prevention of other diseases is so well demonstrated that in view of the presumption that influenza is spread from the secretion of the respiratory tract, the unusual emphasis on public education in promoting nose and mouth sanitation is a most essential administrative measure against the disease. Such teaching should include instruction regarding droplet infection from sneezing and coughing, as well as regarding direct and indirect contact infection from kissing, hand shaking, door knobs and other similar means. It cannot by any possibility do harm and may, if effectively followed, do much good.

Measures to Reduce Mortality.

So much, then, for the measures against influenza itself. There remain for consideration those measures designed to reduce the mortality and permanent disability resulting from an epidemic of influenza.

Medical and Nursing Care.

First among these measures is the provision of adequate medical and nursing service. While the return of so many physicians and nurses from military serv-

ice renders this problem far less acute than was the case last year, the occurrence of an epidemic of proportions approaching that of 1918–1919 will bring to light many communities needing the prompt assistance of physicians and nurses. The plans already prepared by the Public Health Service and the Red Cross, supplemented by state and local resources, should permit these local emergencies to be met promptly and efficiently.

The establishment and operation of emergency hospitals for influenza and pneumonia should be carefully planned in advance and carried forward without any of the untoward happenings of last year.

Prevention of Secondary Infections.

The experiences and researches of last winter did not teach us much about influenza but they taught us much about pneumonia. Epidemic pneumonia is fundamentally a secondary infection engrafted on a lung made ready for the infection by the inflammation resulting from influenza. The etiologic agents producing this secondary infection are well known and their means of conveyance well understood. While there are cases of pneumonia apparently resulting from secondary invaders present in the respiratory tract of the individual at the time of development of influenza, all students are agreed that the evidence points strongly to the fact that many influenza patients receive their infection with virulent organisms producing pneumonia subsequent to the influenza, and as a cross infection. The means of preventing such cross infections are simple, well understood and capable of application under average conditions. The lung, infected with influenza, offers as attractive a field to the invasion of pneumonia-producing organisms as does the recently parturient uterus to the invasion of pyogenic organisms. The precautions to be taken in the two cases are founded on the same principles. The influenza patient must be protected against droplet infection and against direct contact infection. Prevention of droplet infection involves adequate floor and cubic space per patient, the more the better, and the placing of patients in individual cubicles. The aim should be to place as much distance and as many obstacles in the way of droplets traveling from patient to patient as possible. Against contact infection of our influenza patients with pneumococcus or streptococcus we have only to interpose the barrier of medical asepsis — a technic well defined and as accurate as is surgical technic. By these means, even though we may not prevent influenza, we may be able to prevent pneumonia—and particularly the fatal streptococcus pneumonia.

Every hospital, permanent and temporary, which treats influenza, should be required to provide at least one hundred feet of floor space per patient and at least nine hundred feet of cubic space. Every such hospital should provide the best of medical aseptic technic for all influenza patients.

Research.

Above all, however, what we most need in influenza is research, information, facts from every source and every angle. Let us not forget that three years ago we came to the end of a terrific epidemic of poliomyelitis. Research was started on every hand. An enormous amount of work was promised. But for the last year there has been no interest in the subject, and when the next epidemic of poliomyelitis comes, we will be no better off than now. The same will be true of influenza. We must have facts, at whatever cost, and we must secure now while

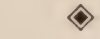
the public still remembers, funds to carry on field and laboratory research until the truth is found.

Summary.

In summary, therefore, we must frankly face the fact that there are no specific measures against influenza which can be expected to yield definite and valuable results. The general measures of isolation and popular education are the only ones which appear justifiable in the light of our present knowledge. Our energies, therefore, must be directed rather to the prevention of fatal complications than to the prevention of influenza itself. For this purpose adequate medical and nursing service and properly equipped emergency hospitals should be organized and made available for instant use. In these hospitals and in the home care of patients every effort must be made to prevent secondary and cross infection.

Above all, we must continue our search for additional facts regarding the disease and for this purpose should insist that adequate financial provision for extensive field and laboratory studies be made by the federal government.

Health officers should themselves cooperate in this work by securing and recording as completely as possible the reports of morbidity and mortality which are available and should lose no opportunity to seek the solution of this sanitary problem which in its importance overshadows any other sanitary problem at this time.



Cambridge, Mass., Churches Help.—A simple plan for the practical coöperation of Cambridge churches with the health and welfare agencies, both public and private, is being developed along the following lines: Each clergyman is asked to select three members of his parish, who are especially interested in community welfare work, to act as a health committee from his church. This committee is expected to become a bureau of information concerning health and welfare work in the city, through familiarizing itself with the work of the various agencies, by learning the location and hours of special clinics and how to use them, and in many other ways. These committees are coöperating by seeing that babies in the neighborhood are put in touch with the nearest baby health station; that expectant mothers receive the advice and supervision of the prenatal nurse; that every case of tuberculosis is adequately cared for, and that members of such families are referred to their physicians or to the tuberculosis dispensary for examination; that insanitary housing conditions are referred to the proper authorities for correction; and that every social need is met so far as possible. They also extend their friendly services to the newcomers in the city, particularly to those who do not yet speak our language.

In order that a committee may have first-hand knowledge of the agencies which it will use, it becomes intimately acquainted with the personnel of these agencies.

Monthly conferences are held, at which the committees make reports and discuss their problems. The reports are an important feature of the plan, because it is stimulating to know that a report is expected. It shows whether or not the committee is discovering the needs of its neighborhood and meeting them adequately, and each report and discussion is suggestive to the other committees.

Committees are also expected to do educational work by arranging for health talks, lantern-slide lectures and exhibits. The Anti-Tuberculosis Association provides speakers, lantern-slides giving information concerning local health matters, posters, and other educational material.

Such service is not dramatic or sensational, but it is service of the highest quality, rendered in a practical, neighborly way, and is far-reaching, as a large contribution toward the conservation of our greatest national resource, health.—Mabel Greeley Smith, *Health Journal of the Massachusetts Tuberculosis League*, Oct., 1919. (*R.*)

AMERICAN RED CROSS HEALTH CRUSADE.

AFTER EFFECTS OF INFLUENZA IN CINCINNATI.

WILLIAM H. PETERS, M. D.,
Health Officer, Cincinnati, Ohio.

Read before the General Sessions, American Public Health Association, at New Orleans, La., October 28, 1919.

Dr. Peters draws attention to the fact that no big work has been generally done to relieve those debilitated by influenza. There is hardship and need and slow recovery. Cincinnati organized relief along these lines, the Red Cross and the Health Department working in coöperation. Organization and results are given in some detail.

DURING and after the pandemic of influenza which swept our country a little over a year ago, a small army of scientific investigators began and they have continued their researches ever since, forsooth, in the hope of discovering the cause and mode of transmission. Its every phase has been studied, in most instances on a broad basis, and much valuable information has been adduced; yet during all of this time not much has been done in a big way to relieve the victims of influenza, and their number is legion.

"I'm not feeling right," "I haven't my usual pep," "I'm all in since I had the flu," are household expressions and so commonplace that we pay little attention to them, yet we know now that very few subjects of influenza escaped without some pathologic changes. The virulence of the disease has been productive of many sequelæ, some very apparent and others quite as obscure.

Shattered homes, health and income, inability to work, impaired efficiency, loss of earning power, mental anxiety and distress, coupled with the high cost of living, completed the chain of horrors following the ravages of the epidemic.

The economic results of the influenza epidemic were first felt by the various social agencies of Cincinnati early in February. All of the institutions caring for dependent persons, especially children, were crowded. The Mothers' Pension Department, with a budget limited to ordinary years, had received scores of applications from dependent women with families, who had lost their husbands during the epidemic. At the General Hospital, among others, had been 151 families of which every member had been stricken and had been cared for at the hospital, with a net total of 553. The Associated Charities found that of over 400 dependent families, 50 per cent of the wage-earners had been unable to return to work, either because of their physical condition or because their positions had been filled by others during their absence on account of illness.

All of the social agencies then faced the problem of meeting the enormous needs caused by influenza, with the budgets which had been estimated to meet ordinary demands. This situation was reported by representatives of the various social agencies to the Cincinnati War Chest, with the recommendation that a fund for the relief of influenza be created.

A definite plan to provide medical care, nursing service and material relief for those whose health and income had

been shattered, struck a popular chord and as an emergency measure the Board of Directors of the American Red Cross accepted the responsibility of financing such a movement, which was christened the American Red Cross Health Crusade by the Chapter Influenza Committee, named by William Cooper Procter, chairman of the Cincinnati Chapter, the committee to coöperate with the Board of Health and the existing social agencies of the city. The movement gained impetus at a luncheon given in honor of Dr. Lee K. Frankel, president of the American Public Health Association, who, in a recent letter, stated that Cincinnati is doing the first piece of real work of any city in the country. Budgetary requirements were approved and the War Chest appropriated $50,000—$25,000 for the medical division and $25,000 for relief.

Briefly our plan was as follows. The city was divided into thirteen districts, organized to meet county demands as well. A central health station was established in each district, the personnel of which consisted of one physician, one nurse, and one clerk. The use of school buildings was sanctioned by the Board of Education. Most of our physicians, and many of the nurses employed, had distinguished themselves in the military service. In developing the medical program and in the selection of clinicians, we had the very helpful coöperation of the Cincinnati Academy of Medicine.

Standard methods were employed in all stations. Primarily diagnosis was our aim, first to discover and then repair, if possible, the damage done. As soon as a diagnosis was established, the patient was referred to his family physician, the district physician of the city, or a recognized clinic, hospital or dispensary, depending upon the financial status of the family. The work was highly constructive in character and every effort made to restore convalescents to their former independence and usefulness in the shortest time.

Many patrons whom we felt were well able to consult their family physician, applied at our clinics for examination, but investigation nearly always brought out the information that their physician "did them no good," "he didn't examine them," "he prescribed for them," when what they wanted was a thorough examination. Needless to say, these people were referred back to the family doctor.

Although the health stations were not designed for the treatment of patients, many cases where only instruction, supervision and perhaps a tonic were needed, were carried for a period of several weeks. Other cases were kept under observation for a short period and then referred. There was an abundance of malt and cod liver oil, syrup hydriotic acid, syrup iron iodide, saccharated carbonate of iron, and other simple remedies for the children and asthenic adults.

Arrangements for special work—surgical, X-ray, laboratory, Wassermans, electrocardiographs—were completed with the hospitals and Health Department so that the clinicians had all facilities at their disposal for confirmation of diagnosis. Venereals were referred to the Federal, State and City Bureau, and all tuberculous patients were cleared through the Anti-Tuberculosis League Dispensary.

In our campaign we had the assistance of some of our local insurance companies, notably the Metropolitan, whose agents listed families in which some member had suffered from influenza. This information was delivered to the nearest station in the agent's territory. This survey alone prompted a very large number of people to consult their own physician. The movement, of necessity, does not stand credited with such examinations.

Mayor Galvin spoke of the health crusade conducted by the Red Cross and Health Department as "one of the greatest reconstruction movements of the day," in an address before 700 insurance agents at the Gibson Hotel. (He was comparing the ravages of war with those of the unidentified pandemic.) "Many people who stayed at home, figuratively speaking, have an arm gone, a leg gone, or an eye gone, and they, too, are in need of reconstruction."

A people who are just recovering from a war, a pandemic of influenza, several liberty loans, Y. M. C. A. and Red Cross drives, will not be attracted by any public movement unless it has for them a personal appeal. We made a serious mistake by not having an intensive publicity campaign in advance, for in spite of generous press notes, it was five or six weeks before we were well under way. Intelligent newspaper publicity, splendid editorials, judicious distribution of placards and leaflets in factories, schools and department stores, flashes in the "movies," the enthusiastic neighborhood work of the nurses, all helped to popularize the health stations and stimulate patronage so much so that during the crest week, 1,024 people were examined.

The great majority of replies in response to our inquiry as to whether or not the health stations should be continued, were favorable and showed that the physicians of Cincinnati were in sympathy with the health crusade.

With the opening of schools, or just four months to the day after the inauguration of the health crusade, the health stations gave way to four night clinics which became part of community center work in the public schools.

During the first four months of operation, 13,772 influenza subjects were listed, 7,058 examined, and 5,624 (or close to 80 per cent) found to be in need of some kind of medical, surgical or dental interference. The number reëxamined from time to time—observation cases—totaled 2,015.

Under the caption "defects and diseases," the number of cardiac cases is rather high (643) and embraces the usual run of lesions from irregularities down through the functional and organic lesions. Careful examination of statistics bearing on the high death rate following preceding influenzal outbreaks, reveals the fact that not a small number of deaths were due to cardiac disease.

Following the epidemic last spring, we were attracted by the number of prominent citizens who died suddenly. Further inquiry invariably brought forth the history of an attack of influenza during the pandemic. Such issues being usually cardiac in origin, this was supposedly the cause in most cases. But what type of heart disease was responsible,—a myocardial infection, a conduction defect, or a serious valvular lesion? Further, could such a condition be diagnosticated in a routine way; and, if so, could an adjustment of corporal activity or other directions prevent?

These and other considerations prompted Dr. Julien E. Benjamin to make special cardiac examinations on selected cases complaining of cardiac distress. The electrocardiograph and polygraph observations will be published later in a special article. In his preliminary report Dr. Benjamin gives us some interesting data.

The greatest distress was noted among those who had influenza during the first wave in October. The symptoms complained of in most cases were inordinate fatigue or exhaustion, weakness, dyspnœa on slightly more than normal exertion, tachycardia and precordial distress.

The cardiac examinations presented

two definite points of diagnostic interest in many cases:

1. A cardiac rate above normal which did not return to the quiet rate three minutes after exercise.

2. A diminution in intensity of the first mitral sound, making it very difficult to distinguish the first from the second sound.

The majority of cases showed no organic heart disease. The few organic lesions which were detected, had existed for several years, probably aggravated by influenzal infection.

The number of tuberculosis cases is striking in this respect, that they are in nearly every instance new cases which for the first time have come to the attention of the Health Department. Of the 183 reported cases, 61 have been confirmed either by X-ray or sputum examination, while 122 cases presented sufficient clinical evidence to warrant a tentative diagnosis of "incipient pulmonary tuberculosis." Particularly well done was the follow-up of tuberculosis cases, which approached as nearly as is possible 100 per cent.

Among the pre-tuberculous (263) are included those with a little roughened breathing, flat chests, enlarged glands, positive Von Pirquet, but no pronounced auscultatory symptoms. We found by our experience, confirmed by many practitioners, that nearly 50 per cent of the children under five who had influenza, gave a positive Von Pirquet.

The asthenic group, so-called on account of the symptoms presented, are really a very interesting study. For the greater part under-nourished, with anæmia of more or less severe grades, lacking in physical strength and initiative, yet without any demonstrable pathology,—these cases frequently enjoyed a speedy return to normal with rest and a course of stimulating tonics.

Defective vision we have with us always; the diseases of the ears and eyes are in general affairs of long standing and not the results of an influenza infection; the hypertrophied tonsils and adenoids are expected to be legion, so that as far as the relation of these conditions just mentioned to the sequelæ of influenza is concerned, we can dismiss them as previously acquired conditions and only remotely, in some few instances, the results of influenza.

The large number of defective teeth indicate that the people still do not appreciate the value of good teeth, and periodical dental examinations are not the rule despite the intensity of the recent educational campaign.

The skin diseases presented nothing unusual, and the venereal diseases were quickly disposed of at the Federal, State and City Night Clinic.

The nose and throat men were quite active in their field, having performed 190 tonsillectomies and adenectomies, while glasses were obtained for 20 and surgical interference was undertaken in 43 cases. There were 174 patients examined by X-ray and 449 plates made.

Almost all of the nurses employed were women who had had experience in public health nursing. The clerks, men and women of a high order of intelligence, knew from the start that they were to have an important part in the work for beside keeping accurate records, it was their task to interpret our feeling of friendly interest to applicants.

The follow-up work was the most important part of the nurses' duty. Diligent effort was made to do constructive case work. Convalescents were referred to family physician, clinic or hospital, and the nurse kept in touch with the patient to see that the plan for the patient's welfare was carried out.

With few exceptions, the people have been cheerfully attentive to instructions.

Where material relief was needed, the case was reported to the Relief Committee of the Red Cross, following a complete social investigation.

Frequent meetings of the nurses and clerks, informal discussions, and a social hour stimulated interest in the work and gave all a broader vision of its possibilities.

The total cost for the medical division, in round numbers, was $17,942, leaving an unincumbered balance of $7,058 for the conduct of night clinics, educational publicity, or subject to transfer for material relief.

The unit cost per patient was $2.54; per examination, $1.97; per nursing visit, 47 cents.

The first meeting of the relief committee was held May 26, when the policy to govern the handling of relief was drawn up and adopted to meet needs created by the epidemic. Originally special relief workers were employed by the committee, but subsequently they were withdrawn and all requests for aid were handled through the Associated Charities, Bureau of Catholic Charities, and United Jewish Charities. Every application for aid from the relief fund was passed upon by the relief committee. None but emergency relief was granted until the patient had been examined at the health station or by a private physician and a written diagnosis presented. Individual budgets were made out for each family and the amount of relief commensurate with the need and management of the case by the attending physician.

Relief was granted to the full extent of the budget to those who had been widowed by influenza, where it could be shown that they had no means of support. If additional relief was needed, as in the case of old dependents and others who were restored to health, the applicants were turned over to the regular relief-giving agents.

Malnourished and anæmic members of families, even though they did not have influenza, were examined as a matter of prophylaxis and a plan worked out for health betterment.

Persons suffering from influenza, who were able to do light work, were placed and a sufficient amount of relief granted so that they might continue with light work at a smaller salary until they were restored to full working capacity.

Influenza patients who were physically unfit and where rest was indicated, were granted sufficient amounts to meet the family budget until the convalescent was fully restored to health. Some were sent to the convalescent home; others boarded in the country when the doctor so recommended.

Suitable employment for two or three days a week was provided for healthy widows who did not have more than three children and arrangements made for the proper care of the children while the mother was at work.

Special diets of milk and eggs were given to supplement whenever the doctor advised that this extra nourishment would hasten convalescence. Teeth, eyes and tonsils were attended to where it was shown that this treatment was necessary for full recovery.

All sorts of family adjustments were made. Convalescents were provided with transportation to the homes of relatives in other parts of the country who were able and willing to assume the responsibility of the families made dependent by influenza.

At the present time, relief is being expended at the rate of approximately $1,000 per week to 150 families. Social service care must, of course, go hand in hand with the medical treatment. It is

our aim to reconstruct socially each family, as far as that is possible, by the time the patient is well physically, so that the case when dismissed is cured in the highest sense of the term.

The improvement in health of convalescents varies with the individual and it is, therefore, difficult to say how much money will be required and over how long a period. The influx still exceeds the rate at which cases are being closed. Suffice to say that the beneficiaries of our survey will be taken care of by extra appropriations or through the regular relief agencies on supplemented budgets.

The American Red Cross Health Crusade in Cincinnati was successful, and undoubtedly its salutary effect will be reflected in future mortality tables.

A great factor in a movement such as the Red Cross Health Crusade is educational publicity. It must be publicity dressed up in the form of news. It must be something that the newspapers will be willing to publish because it has a news value. The average American newspaper has developed a laudable tendency to aid in such movements as public health crusades. All they ask is coöperation.

The main value of the newspaper publicity, however, was not so much in the splendid stimulation it gave the immediate work of the clinics, but in the far reaching effects we believe it will develop in educating the public to a periodical "health stock taking." That is one thing which we sought to emphasize during the publicity campaign. We advised the people to visit their family physicians for physical examinations and urged that they repeat these visits at regular intervals. And we believe that we have sown seed on fertile soil.

We have reached the needy influenza survivors who have applied, restoring many to health and independence by financial and physical reconstruction, and have, in a measure, prepared the people for the expected fall drive of influenza which many of us believe will be turned into a brilliant counter-offensive.

In compiling this report, I am exceedingly grateful for contributions from Dr. A. C. Geringer, Kennicott Brenton, Miss Alice Richard, Dr. Benjamin, Miss Louise Kuck, A. F. Sommer and Rudolph Benson, who were Associate Directors in the Health Crusade.

Practical Training for Public Health Nurses.—In order to increase the available number of public health nurses, and to give these individuals definite, practical training, it is suggested that part of the training should be obtained in the service of municipal health departments. A system of coöperation between municipal health departments and nurses' training schools could be devised which would afford the pupil nurse the necessary practical training in public health nursing. The training should extend over at least three months and wherever possible over six months. The pupil nurse should be trained especially in child hygiene and in the preventable diseases. In child hygiene the nurse should have practical training in prenatal home visiting and the instruction of expectant mothers; in infant clinics; in midwife inspection and education; in the health supervision of children in schools, in the home, and in institutions. In preventable disease work the nurse should have experience in the home visiting and investigation of cases of communicable disease, particularly tuberculosis and typhoid fever; in clinics for tuberculosis, venereal diseases and industrial diseases. If possible she should also receive some training in food inspection and sanitary inspection.—Carl E. McCombs, M. D., *Modern Hospital*, Aug., 1919. (*M. P. H.*)

PUBLIC HEALTH PERSPECTIVE.

L. L. Lumsden,
Surgeon, U. S. Public Health Service.

Read before General Sessions, American Public Health Association, at New Orleans, La., October 29, 1919.

"Save 250,000 human lives in the United States in 1920!" is Surgeon Lumsden's slogan, and he backs it up by outlining how to do it. The world must have increase of man-power. Public health aid is essential. Needs are: whole-time health officers, effective local agencies and coördination of all agencies, and then the American spirit to "go over the top." : : : : : : : : : :

"Where there is no vision the people perish."

WITHIN the last twelve months the world has entered upon a period with potentialities of good or ill for its peoples such as before have not been presented since recorded history began. The free peoples of the world have won the war. Our battle cry was "Make the world safe for democracy." Democracy crowned with the wreaths of victory has been lifted into the saddle. This great American idea is triumphant. Majority rule through authority constituted by the people is to be tried on a scale never before dreamed of. The value of democracy to the world is to be determined at an almost bewildering rate. The competency of nations to maintain or to establish and maintain "Government of the people, by the people and for the people" is to be tested in the crucible of world crisis. Whether this period shall be recorded as "the period of great gain" or as "the period of great loss" depends on the individual and collective thoughts, decisions and actions of the peoples themselves.

Many ideas and plans which appeared good even as late as the years 1914 and 1913 will have to be laid aside as of ancient times. The need to do some things different and many things better is apparent. The urge to use more and better the instruments of proven value which are at hand to restore the losses caused by and coincident with the World War is already strong and widespread among the peoples and probably will become more so. The surface indications now suggest that along many important lines for human welfare more progress will be made within the next five years than one in the old past of 1914 could reasonably have expected to be made in fifty years.

In the present period of urgent necessities and wonderful possibilities the American nation, as the great pioneer in modern democracy, has within the wide limits of its powers and resources a great opportunity and a large responsibility. There was never a time when clear perspective and common sense were more needed among our people.

Increase of Man-Power Needed.

The estimates of the loss in blood and treasure caused by the World War stagger the imagination. For more than four years the energies of many powerful nations were concentrated on producing and putting into action engines of destruction of appalling efficiency. Toward the end of the active period of the war a pandemic of influenza-pneumonia began its sweep over the world and added its frightful quota of destruction. The number of

persons killed by this pandemic within a few weeks in the United States exceeded by more than tenfold the number of American troops killed by wounds received on the battlefields of Europe. Some of these losses can never be repaired. Others can be.

The world appears solvent. With the knowledge gained from disaster the strong and sensible may make a great leap forward into the light. Of all peoples, we of the United States should profit from the lessons of the war. We have discovered our strength. We used that strength gloriously to help win the war. We have discovered also some of our weaknesses. Some of these weaknesses which could not be attended to during the war can be attended to now. We should undertake to correct them.

For good living to be restored a great period of construction must follow the awful period of destruction through which the world has recently passed. Every day's delay in the beginning of the program of construction is disastrous. Every obstacle to construction which can be removed by reasonable measures should be removed. The United States has a big part to do in the program of construction and production needed. We must make good.

The welfare of our own people and that of other peoples whose welfare reacts upon ours will depend largely for the next few years upon the resources of the United States. Our resources though large are not unlimited. They must not be wasted. They must be developed and used sensibly. The most important of our resources is our human power. Upon it depends our ability to use our other resources advantageously. We have been prodigal with this resource. We have failed to develop it as we should and we have wasted it shamefully.

Public Health Advancement Essential.

Now, as never before in time of peace, American brain and American brawn are needed to do work. If we fail, the world will fail, and civilization will slip back. In the period in which we are now entering we have an unparalleled opportunity to conserve and to develop our human power. The critical need for public health advancement in the United States was never more obvious than it is now. The psychology of our people generally seems more favorable than ever before for a nation-wide, constructive business-like program of public health work.

One of the startling discoveries during the war was that more than 30 per cent of our men between the ages of twenty-one and thirty-one are physically defective to such a degree as to be unfitted for arduous military service. A large proportion of the physical defectiveness found among our young men drafted from all parts of the United States—rural and urban—was due to preventable diseases and easily correctable conditions. The cross section of our health condition furnished by the physical examination of the draftees presents evidence which should be convincing to even the most obtuse that we—and by "we" is meant the individual citizen, the community, and the local, the state and the national governments—have seriously and fearfully neglected the most important factor in our national development, our human power. We should profit from this lesson of the war. Upon the business-like attention which in the future—and in the immediate future—we devote to our public health depends largely our opportunity to develop a nation capable of meeting the crises of both war and peace and of demonstrating to the other nations of the world the value of democracy.

Some of our public health enthusiasts point with pride to the records showing that in the United States in the nineteenth century the average life increased from thirty-three to forty-two years. On analysis of these records, however, it appears that the gain was largely through the saving of infants. The saving of babies is important, but from the standpoint of the nation the saving of adults equipped at community expense with experience and knowledge to think straight and to work hard is even more important.

In our progress along many important lines in the last quarter of a century the hygienic advancement of our larger cities has been quite gratifying, but hygienic advancement in our smaller cities, towns and rural districts has been remarkably lacking. From detailed sanitary surveys of extensive representative rural districts conducted by the United States Public Health Service within the last few years,* it has been determined that at less than 2 per cent of the rural homes in the United States are the sanitary conditions reasonably good in the most essential respects. Certain diseases which are caused by infections spread from person to person are, notwithstanding the sparser population, much more prevalent in our rural sections than in our cities. Hookworm disease and malaria are now diseases almost entirely of rural origin. In many sections of our country typhoid fever and dysentery are more prevalent in the rural districts than in the cities. Tuberculosis is appallingly prevalent in our farming communities. Infections of the respiratory tract conveyed largely through unnecessary personal habits are widespread. These diseases incapacitate persons for useful, profitable labor. They take the joy out of living. They cause untold human suffering and much premature death. And they are preventable!

* Public Health Bulletin No. 94.

The annual economic loss to our nation from preventable disease and from physical and mental inefficiency resulting from correctable conditions has been variously estimated in hundreds of millions of dollars. In this time, of all times, we cannot afford unnecessary waste of our vital capital. To prevent such waste to a reasonable degree, a radical advancement in our public health procedure at this time would be justified *provided*—and "provided" is in italics—the gain will exceed sufficiently the cost of the health measures, and *provided further* that the investment of time, energy and money for health work will yield a dividend sufficiently large when compared with the dividends which could be realized from an equivalent investment for other lines of important work. With the burdensome taxes now upon us, and to remain upon us for years to come, and with the critical need for many important lines of work, careful attention should be given to the nature of the investments which may be made with both our private and our public funds. A fund invested in well administered health work will yield, according to conservative estimates, a dividend of about 1,000 per cent. Such a dividend looks "right good" even in the hardest times.

Feasibility of Public Health Advancement.

The value of reasonably administered health work on an adequate or a fairly adequate scale has been demonstrated under a wide range of conditions—both urban and rural. A notable example was the health work in the Panama Canal Zone which made the Isthmian Canal possible.

The recent health work within and around the cantonments and the war-industry establishments in the United States gave results of tremendous immediate value from a war-time standpoint

and of some value as a demonstration from a peace-time standpoint. The work in the zones around the camps was conducted by augmented and coödinated forces of the United States Public Health Service, of the American Red Cross and of state and local health departments. The continuation through 1919 of this work even on a considerably reduced scale would have resulted, according to all the indications, in the establishment of a number of permanent units of sanitation which in peace-time would have been of large national value as demonstrations. A request made by the Public Health Service and approved by the Treasury Department for a sum of $850,000 to continue this work and the other activities of the Interstate Quarantine Division of the Service in the fiscal year, July 1, 1919, to June 30, 1920, was answered by Congress with an appropriation of $25,000.

From the small amount of work as yet done in the United States in rural sanitation, generally conceded to be one of the most difficult and certainly one of the most important phases of health work, the results have been entirely encouraging. In view of the number of requests from state and county health departments for coöperation in rural health work and in view of the urgent importance of such work to all the people of the United States, the Public Health Service, with the approval of the Treasury Department, made a request for $500,000 with which to conduct on a reasonable scale in the fiscal year 1920 a well-tested plan* of coöperative demonstration work in rural sanitation. This request was answered by Congress with an appropriation of $50,000.

Thus the appropriations for these cooperative activities of the health agency of the national government in the period of this fiscal year with its remarkable potentialties for progress were reduced to what was called "the pre-war basis." That appropriations for other activities of the national government, however, were not reduced to a "pre-war basis" is indicated by the fact that for the general activities of the national government in the fiscal year 1920 appropriations totaling over seven and a quarter billion dollars have already been made—and more are to be made—as against $1,114,937,-012.02 for the last pre-war fiscal year 1916.

Our governmental appropriating bodies —national, state and local—appropriate within the limits of the funds available for different governmental activities largely according to the apparent popular demand for each of the activities. This seems natural and proper under government by the people. Until our people generally become awakened to not only the absolute value but also the relative value of public health work our legislative bodies can not be expected to grant the authority and the funds necessary for public health advancement on a reasonably adequate scale. Therefore one of the chief duties of the health official is to convey to the people the facts from which properly may be drawn a popular public health perspective.

Business-like Procedure in Public Health Work Necessary.

As public health work affects all the people it appears logical for it to be conducted essentially as governmental business. The establishment and maintenance of reasonably adequate governmental—local, state and national—health agencies properly coördinated to function in a common-sense, business-like way in every community in the United States is so logical, in fact, that its realization

* Public Health Reports, Vol. 34, No. 45, pages 2529 to 2538, of November 7, 1919.

eventually may be expected. That the cost of public health activities be met with funds obtained from equitable taxation of the people seems right. The civic or the philanthropic organization upon entering the very appealing field of public health work should function with and through official governmental health agencies and carry out its phase or phases of health work with a special view to permanent augmentation of official health agencies which are wanting in efficiency. If two or more agencies undertake independently to conduct the same public business in the same community, waste of money, loss of motion, friction, confusion and injury to the general cause are almost sure to result.

Public health work should be conducted not as a fad or a fancy, or for the special benefit of any particular set of people, but as a vitally important business for the general and permanent benefit of all the people. If our public health business in the United States cannot be conducted efficiently and economically by our local, state and national branches of government, our democracy will be a failure—and that is unthinkable. To our nation no business is more important than is the business to establish and maintain throughout our broad land conditions which will make for the health, the mental and physical vigor and the happiness of our men, women and children. Our men and women returned from the battlefields of Europe can be expected to insist upon efficiency in the public business for the correction of unwholesome conditions such as heretofore have been tolerated.

For success in the administration of the public health business broad constructive policies and careful attention to details are necessary. Each phase of work should dovetail in with the other phases of work carried out. The sequence in which the different phases of work are concentrated upon is important. The science of hygiene is like the mystic tree of old "which bare twelve manner of fruits and yielded her fruits every month; and the leaves of the tree were for the healing of the nations." The health officer may become overwhelmed with the opportunities for needed service and flounder. He should take inventory of his stock. He should consider when and where the different lines of his stock are most needed and are likely to be used to the most advantage. He should endeavor continually to make every dollar of his health fund* and every unit of strength of his health force yield the biggest possible dividend. In short, he should use common sense and proceed in a business-like way with the vitally important business which he has at hand.

The administration of public health work is an all-absorbing business. Much success cannot be expected from the administration of a part-time health officer. A conservative estimate is that with factors of personal equation equal one whole-time public health officer is worth more than twenty part-time public health officers. Our larger cities gradually are realizing that whole-time personnel is essential to advantageous health business and that an annual investment of as much as 50 cents per capita for the conduct of the health business is good business. In our rural districts, however, whole-time health organizations capable of conducting even a fairly adequate degree of health work are very exceptional. The bulk of our detailed health work should be conducted by official local agencies. The weakest links in our chain of health machinery are in our extensive rural districts. Here they should be strongest. What concerns importantly the sixty million people living in our rural communities surely should be a

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* Chapin, Charles V., "How shall we spend the Health Appropriation?" American Journal of Public Health, Vol. 3, 1913, page 202.

matter of concern to every state government and to the national government. The cost of health work in the rural district is relatively more than in the city. Some of our rural districts are not yet financially able to bear easily the cost of reasonably adequate health work. To bring about without loss of critically important time reasonable health work in our rural districts some assistance from the state governments and the Federal government appears in order.

Augmentation and Coördination of Health Activities Indicated.

In view of the need for and the importance of public health business in the United States it is difficult to understand why the American people with their characteristic energy have not gone into this business in a business-like way. As yet we have but played with our public health problem. We have no more than scratched the surface of the field of certainties in public health work. Perhaps those who know something of the possibilities of public health work have not pressed the matter with sufficient urgency to evidence sincerity of purpose and to carry conviction to the minds of the American people.

Only a few of our larger cities, only a few of our states and less than one half of one per cent of our rural counties and townships have health departments approaching adequacy. Our national government has proceeded constructively but quite conservatively in developing a Federal agency, the United States Public Health Service, for work in the field of public health.

Governmental agencies—national, state and local—created for other purposes, recognizing the need for public health work and the want of proper agencies to do the work, from time to time extend or endeavor to extend their activities more or less distinctly into the field of public health. Such procedure in some instances may be of temporary value, but it frequently causes confusion and in the long run is apt to hinder rather than help the development of specific properly equipped governmental forces to carry out in a business-like way a constructive public health program which would be of permanent value. Public health work is so comprehensive that it reacts upon and is reacted upon by most other lines of public work, and a certain amount of duplication or overlapping of activities of governmental agencies seems inevitable. Much of the duplication is unnecessary and disadvantageous, however, and could be eliminated by administrative coördination.

From time to time, with a somewhat remarkable periodicity, agitations are begun for reorganization of our so-called "health agencies." Duplication of health activities has not yet appeared so common or so serious as lack of health activities. Therefore, augmentation seems more pressingly indicated than reorganization or coördination. With machinery set in operation for ample production the problem of distribution will become less and less difficult. In our public health field the local, the state and the national governments have respectively certain clearly defined functions which are indicated in our general scheme of government. In the so-called "twilight zones" in which any or all of the three may function a plan of coöperation in extent and kind agreeable to the coöperating agencies is practicable. Whatever difficulties may arise in connection with such coöperation will be due to factors of personal equation which, let us hope, in all instances will be remediable.

AN OVER-THE-TOP DRIVE SUGGESTED.

The responsibility for health conditions rests with the individual citizen, the community and the local, state and national governments. With government for the people the health of the people, the most important item in the general welfare, should be a matter of constant concern. The local and state governments under their police powers have ample authority to perform. The national government under its constitutional authorization (a) to regulate interstate commerce, (b) to lay and collect taxes, and (c) to raise and support armies appears to have opportunity to do its proper part in public health work. Some sanitary measures can be carried out more economically by concerted community action than by independent individual action. The observance of the most essential hygienic principles,* however, depends largely upon the convictions of the individual citizen who, under our government of the people, is the biggest possible factor for the advancement of our national welfare.

Our public health interests have not yet made the proper appeal to our average individual citizen. When they do, and not until they do, will reasonable progress in our public health business be made. American psychology demands an objective. With an objective our boys went over the top on the battlefields of Europe and with their bayonets and with their blood wrote the greatest page in world history. The same spirit, which moved every red-blooded American to sacrifice and to work and fight to win the World War for civilization and decent living, is available now and by a proper appeal can be stirred into effective action in a war against physical inefficiency and preventable disease among our people.

I suggest as a public health objective *the Saving of 250,000 Human lives in the United States in the year 1920.* In that year a national election is to be held. In the political campaign the people will be told much about matters supposed to concern them importantly. We have two months in which to organize the campaign of 1920 for the saving of human health and human life. This campaign may be organized and conducted along the same lines as were the Liberty-bond and the food-conservation campaigns and the Red Cross drives. Every civic and official body in the United States can begin at once to consider ways and means for this health drive. The American Public Health Association seems a proper organization to initiate the movement. The carrying out of such a plan would have an educational result which could be expected to fix in the minds of the people the salient facts of hygiene and to create a general popular demand for the continuation of reasonable health work throughout the United States. This way of attacking our national health problem may appear to some as highly fanciful. But if the campaign be organized sensibly and be conducted unselfishly, I verily believe that it will succeed. We do things not especially because they are logical but because they are psychological. The psychology of our people now demands reconstruction to make up the losses from the war. This health drive would be by and for our own nation. During the war our average community made a great discovery—its competency to bring about concerted individual action to do things worth while. Our community, state and national consciousness is ready for organization. Our health interests reach down to the bedrock of human existence. They are woven into the warp and woof of our future. Nothing is more important to us. Much that has been impossible before is now within our grasp. To go over the top is the American way and the American way is good.

* Public Health Reports, Vol. 34, No. 44, pages 2432 to 2433, of October 31, 1919.

NEED AND METHOD OF COÖRDINATING FEDERAL, STATE AND LOCAL HEALTH AGENCIES IN PROMOTING INDUSTRIAL HYGIENE.

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Assistant Surgeon-General, U. S. Public Health Service, Washington, D. C.

Chairman's Address before Section on Industrial Hygiene, American Public Health Association, at New Orleans, La., October 28, 1919.

This author says that what the country needs is not extension of Federal authority so much as health education of the people to support what exists. The U. S. P. H. S. has already all the power that may constitutionally be given to a Federal health agency. It has a distinct industrial health program, and all it needs is good financial support.

THE most cogent fact we have learned from the war is that man-power is the basis of national prosperity. Yet, while it is the basis, it represents potential energy only. To make man-power kinetic we must have the means to apply it under favorable and effective conditions. We all know that it is not mere numbers alone that make a nation great, but the kind of men and women in it. As hygienists, this brings us at once to the consideration of the health of the nation as an essential to enable us to convert fully the potential energy of its man-power into kinetic energy.

I need hardly remind you of the fact that there are some 45,000,000 occupied persons in the United States, of which some 25,000,000 may be classed as industrial workers. You are all familiar too with the story told by the draft examinations which showed that some 34 per cent of the males of military age were unfit for military duty because of physical defects and diseases. As the average age of the industrial worker is higher than that of the population group examined for the draft, and the percentage of physical mpairments tends to increase rather than to decrease with age, it may be expected that the number of physical impairments in the industrial group of the population is higher than it was among those examined for the draft.

Moreover, besides the industrial health hazards we had before the war, we have seen the development, because of war conditions, of new industries, such as the dye industry, which are introducing new health hazards into our industrial life. So, while on the one hand our industrial development tends more and more to expose the individual to health dangers, on the other, we are coming steadily to the realization that work should prolong rather than shorten life, that working conditions should conserve rather than impair health.

We know that, in the past, we have been prodigal of our industrial man-power. We have thought too much in terms of production of the moment: so many millions of tons of steel per annum; so many billions of dollars of manufactured products; and these, largely produced by highly developed automatic and semi-automatic machinery, jigs, fix-

tures, and a highly specialized series of operations, most of which could be carried on by unskilled, or at most, by semi-skilled labor. But now, as we face the period of reconstruction, the healing of the gigantic wounds of civilization, we do so with a better concept of the value of the individual to the nation, a fuller realization of the utter folly of permitting needlessly unhealthful conditions to sap the man-power of the country, to relegate the individual to the scrapheap at a time in life when he should still have many productive years before him.

The need is, therefore, imperative for a constructive national policy for the better protection and conservation of industrial health. What we must aim at is the application of the principles of public health science to the field of industry so as ultimately to secure for all workers practically the same measure of health protection no matter in what part of the country they live. It is evident that, in attaining this end, Federal, state and local health agencies must play an interlocking and coördinated part in improving health conditions, so that overlapping may be prevented, no power usurped and yet each governmental agency perform its full duty.

It is my purpose to discuss briefly possible Federal activities in connection with state and local governmental agencies. It will not be possible to discuss the exact scope of the functions of these separate agencies of government independently as they are necessarily so related and intertwined that this is impracticable.

Commencing then with the Federal government, this has a most important part to play because improvement of industrial health, having a profound influence on national welfare, is a national concern. I need hardly remind you, however, that the extent to which the Federal government may act is limited by the constitution. Under these limitations the powers of the Federal government are investigative, advisory, coöperative, and, to a certain extent, regulatory. So far as regulatory powers are concerned, these are not fully defined. Thus, the Federal government has certain regulatory powers, particularly in relation to taxation, the control of maritime and interstate traffic, the spread of disease through interstate channels and matters concerning the national defense. These matters involve the exercise of the Federal police power. Yet, we all know that under usual conditions the intrastate enforcement of regulations for health protection is accomplished by the police power of the states. This is a feature of the American system of government, and, generally speaking, when the Federal government does exercise sanitary police power in intrastate matters, it does so at the request of a state and with power voluntarily delegated to the Federal government by the state. In reality the regulatory power of the Federal government is coëxtensive with public opinion. If in the future public opinion demands an extension of the Federal powers of regulation, in so far as health matters are concerned, we may expect either a broader interpretation of the constitutional powers of the Federal government, or such constitutional amendments as may be needed.

But I wish to emphasize, in this connection, that in our country what we need is not so much an extension of Federal authority in health matters, as the development of a sense of responsibility for good health conditions in the people of the state and locality. It is the development of this sense of responsibility which will enable the Federal government to play its really powerful and useful

part in improving health conditions generally.

Take the existing health powers of the Federal government: these in the main are exercised through the United States Public Health Service, although, as you are aware, other Federal bureaus, such as the Bureau of Chemistry in the Department of Agriculture, the Children's Bureau and the Bureau of Labor Statistics in the Department of Labor, have activities more or less related to the public health.

I wish especially to point out, however, that the United States Public Health Service is already clothed with all the power and authority which, under the Constitution, may be given to a Federal health agency. The only limitations on its activities are constitutional limitations and the extent of the appropriations granted by Congress.

Under these powers the Public Health Service is authorized (a) to investigate any and all disease-producing conditions; (b) prevent the spread of disease through interstate channels; (c) prevent the introduction of disease into the country from without; (d) coöperate with and aid state and local authorities in carrying out health measures; (e) disseminate information to the public.

With these powers the Public Health Service may perform the following important functions in a national program for improving industrial health. This program has already been published in supplement No. 36 to the *Public Health Reports* of May 9, 1919, as part of a general health program to meet after-the-war needs proposed by the Public Health Service. This program was presented to Congress by the secretary of the treasury with an urgent appeal to provide the funds for carrying it out. So far, Congress has not appropriated the funds.

The section of the program dealing with industrial health is as follows:

(a) Continuing and extending health surveys in industry with a view to determining precisely the nature of the health hazards and the measures needed to correct them.

(b) Securing adequate reports of the prevalence of disease among employees and the sanitary conditions in industrial establishments and communities.

(c) National development of adequate systems of medical and surgical supervision of employees in places of employment.

(d) Establishment by the Public Health Service, in coöperation with the Department of Labor, of minimum standards of industrial hygiene and the prevention of occupational diseases.

(e) Improvement of the sanitation of industrial communities by officers of the Public Health Service, and coöperation with state and local health authorities and other agencies.

(f) Medical and sanitary supervision by the Public Health Service of civil industrial establishments owned or operated by the Federal government.

Let me supplement this program by the following brief discussion of its features:

Health Surveys of Industries.

While the general enactment of compensation laws has fostered to a considerable extent the study of industrial accidents and their causes, and is rapidly fostering a movement to inaugurate, on a nation-wide scale, measures for the rehabilitation of industrial cripples, even now there is little actual information available for the United States of the real occupational hazard, apart from accident, and the weighting in order of relative importance of their underlying factors. Federal and state agencies have made intensive studies of certain industries, for instance, the lead, steel and chemical industries, but surveys of truly national scope are still lacking.

Evidently it is not sufficient to study an industry locally. Surveys must be extended to cover all typical geographical locations of the industry under consideration in order to determine the differences, if any, of its essential occupa-

tional hazards because of variations in location, type of management, provisions for health protection, type and degree of local health organization and the like.

Besides the crying need for a comprehensive knowledge of our present industrial fabric we must remember that many new industries have been established as a result of the war which will become permanent features in the United States. It is essential to familiarize ourselves with these industries from the standpoint of industrial health.

Industrial Morbidity Reporting.

It is superfluous for me to dilate before this section, on the importance of industrial morbidity statistics and their indispensability in any serious attempt to improve the industrial health of the nation. While occupational diseases have been made reportable in a number of states, the reports secured up to the present are lamentably casual and desultory. So long as such reports rest upon the voluntary act of physicians, and so long as physicians themselves are interested more in the treatment of diseases than in their causes, advance will necessarily be slow.

It is evident that the United States Public Health Service may play a most useful part here by stimulating and aiding in the collection of such statistics and in acting as a clearing house for the dissemination of the information so obtained.

Real progress will only be made, however, when assistance can be given directly to states to enable them to collect the information and forward it to the central office in Washington. In view of the fact, however, that the police power, in the regulation of intrastate health matters, is exercised by the states, it is most desirable that the primary collecting agency should be the state, aided and stimulated by the Federal agency.

Adequate Systems of Medical and Surgical Supervision of Industrial Workers.

So much has been said and written on this subject that it is unnecessary for me to go at length into the need for adequate systems for the medical and surgical supervision of industrial workers.

I only wish to emphasize that the keynote of such systems is health service. Above all, it is not a means to select the fit, and to reject the unfit, but an effective instrument in the proper application of national man-power by inducing a positive condition of health in 100 per cent of the workers. As part of such systems of medical and surgical supervision, I can fore-shadow the general establishment, in industrial centers, of industrial clinics to which cases may be referred by the medical organizations in plants.

It is evident that such health services are primarily to be established by industries themselves. By their establishment we sense the recognition on the part of industry of their share in the responsibility for improving industrial health. The industry helps the worker to keep well so that the nation, the industry and the individual are all benefited. This sense of responsibility is felt, and health services are actualities in large numbers of progressive establishments already.

Yet such projects may stand on a permanent and nation-wide foundation only when they fill existing needs without superfluity. What the Federal health agency may do best here is to study and standardize such systems, outlining the best methods, and creating a demand for the qualified personnel necessary for carrying these into effect.

States may help by exercising their police power, in framing regulations for

such services, and in coöperating with industrial communities in establishing industrial clinics.

Establishment of Minimum Health Standards.

The necessity for minimum health standards with which to work is self-evident. Much of state legislation relating to the protection of industrial health is vague in its specifications.

Much research is still required to formulate practicable standards for existing industries, and to keep pace with the introduction of new industries and new processes. I need hardly remind you that the Federal government is the standard-making body for excellence. It is without bias. It desires nothing but the truth. So far as appropriations have permitted, some work of this character has already been begun by the Public Health Service. If it is to become comprehensive in its scope much greater appropriations are required than have hitherto been granted by Congress.

Improvement of the Sanitation of Industrial Communities.

We have seen that, under existing law, the Public Health Service is empowered to aid and coöperate with state and local health authorities in improving health conditions. Congress has already made modest appropriations to enable the Public Health Service to coöperate with these authorities in improving rural health.

The results in rural districts, where Federal aid has been extended to build up a local health organization, have been highly satisfactory, and often spectacular. Moreover, instead of increasing local dependence upon Federal aid, it has had the effect of stimulating these rural communities to extend and perfect the health organization the government has assisted them to establish.

I believe that a similar system applied to industrial communities, in coöperation with states, will aid greatly in improving the insanitary conditions all too prevalent in many of our industrial centers. Moreover, the coöperation of the Federal government in such enterprises is abundantly justified because the benefits reaped are not solely enjoyed by the community but by the nation as a whole.

Civil Industrial Establishments Owned and Operated by the Federal Government.

Finally, I should say a word about the medical and sanitary supervision of civil industrial establishments owned or operated by the Federal government.

During the war, the number of these was greatly increased. Since the armistice, however, the number, while exceeding that of pre-war times, has considerably diminished. While we were at war, the Public Health Service supervised the sanitation and medical service in as many of these establishments as possible, but was much handicapped because of the great shortage of medical personnel.

Since the Federal government is the greatest employer of the country it is but fitting that it should be a progressive employer and do for its employees what any progressive private corporation would do. Yet it must be admitted, up to the present time, the provisions made for the sanitary and medical supervision of the civil industrial establishments owned or operated by the Federal government fall below the standard maintained by numerous private corporations.

The results obtained by the Public Health Service during the war in the sanitary and medical supervision of such establishments are abundant justification for their continuation and extension. It is earnestly to be hoped that the way will be found to enable the Federal govern-

ment to become a model as an industrial employer for all private corporations.

Such then is the program of the United States Public Health Service for the improvement of industrial health. We have seen that this consists essentially in investigation, leadership, advice, education, coördination of effort and coöperation. The intention is to supplement, not supplant state and local government. The authority under law to play this important part is already in existence; all that is needed is money and the acquisition and training of the necessary personnel.

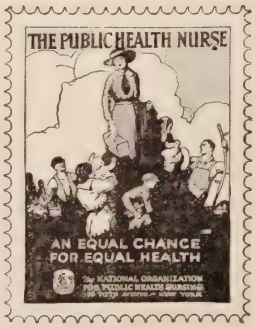
There is, at present, in the states and communities a great need for the coördination of their own health activities, so far as the improvement of industrial health is concerned. While general health functions are exercised by state health departments, and in communities by local health departments, supervision over industrial health is exercised by state industrial commissions, state departments of labor or state departments of factory inspection. In local health organizations little or no provision is made for the improvement of working conditions. There is great need for change and improvement here.

Since the public exercises, as a rule, its police and regulatory powers through the state machinery, the pressing need, so far as states and communities are concerned, is to improve and coördinate their organizations to this end. The program of the Public Health Service, if carried out in the manner discussed, will provide a basic knowledge of conditions requiring remedy, and furnish minimum health standards. If states and communities assume their share of the responsibility, they will provide the funds and machinery to put these standards into effect.

In this manner, so far as geographically practicable, uniform working conditions and effective means for the conservation of industrial health will prevail. Yet we must keep ever in mind that the purpose of any health organization, Federal, state, or local, is not to multiply upon the statute books unnecessary laws, nor to develop political organizations, but to become administrative agents of the public purpose, now approaching realization, to translate into deeds the newly developing sense of responsibility for local health conditions, to help realize, so far as possible, uniform health conditions, and a favorable environment for the growth and development of the present and future generations.

AN EQUAL CHANCE FOR EQUAL HEALTH.

Here is an outward and visible sign of a good deal of inward activity, for the National Organization for Public Health Nursing has a number of useful activities. One of the newest of these is a Library Service for Public Health Nurses. The Organization maintains a central library at its offices in New York City in which are filed thousands of health pamphlets, bulletins, reports, clippings and reprints. A package of pamphlet material may be borrowed by any interested person or group. Packages are made up to suit any specified needs on application to the librarian. These will be sent by mail and may be retained a reasonable length of time.



Another activity along the same line is the maintenance of State library centers in nearly all the states. These centers contain assortments of books helpful to those in the nursing profession or in health work, conveniently placed for immediate use.

The illustration is of the poster-stamp, available as a poster to be seen from afar, or as a little stamp for use in correspondence, bearing the slogan, "An equal chance for equal health."

PUBLIC HEALTH WORK IN INDIA.

II. A REVIEW OF THE NATURE AND PROGRESS OF SANITATION.

HARRY N. JENKS, B. S.,
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For a type of Hindu conception of sanitary precaution, Mr. Jenks notes three kinds of "boiled" water: first, water merely heated till it steams; second, really boiled, but then strained through dirty cloths, and, third, really boiled, but cooled by adding raw water. Such practices and the distribution of drinking water in leather sacks, customs universally observed like the great gatherings of pilgrims, together with religious prejudices make sanitary progress very slow. : : : : : : : : : : : : : : :

IN the preceding article an endeavor was made to describe in broad outline the outstanding features of the social and economic life of the peoples of India in their relation to the sanitary problem. From a consideration of this subject it was seen how intimately associated with the question of public health are the native habits and customs, as embodied in the caste system and kindred religious beliefs and practices. The opinion, held by public health workers in India, was summarized in the statement that any extensive development of sanitation must necessarily await the upbuilding and modifying influences brought into play by the general education of the masses, the introduction of Western methods and materials, and the raising of the economic status of the people.

Having thus caught a glimpse of the background of Indian conditions, it is thought that a short account of certain phases of the actual health work being done in India will not only be more readily appreciated but will also possess an added interest.

RURAL SANITATION.

Under this heading are grouped the work undertaken by government in the districts surrounding the centers of population, the sanitation of the European "cantonments" in the native cities, and sanitary measures carried out by private corporations and by individuals in camps and on estates.

The various local governments of India are accomplishing much for the cause of public health through the efforts of Indian Medical Service officers working under the direction of the sanitary commissioners. This service is rendered by means of the collection and publication of a great mass of information regarding the origin and control of infectious diseases, as well as through personal assistance in the emergencies arising from the appearance of these diseases in epidemic form. Up to the present, however, as has been pointed out by Boyce, no concerted movement has been made looking toward the practical eradication of any specific disease in India. Malaria is the great scourge in rural communities, particularly in the "jungle" stations, but no general action has yet been taken in its control comparable to the stamping out of yellow fever in the West Indies.

In each important city throughout India, where there is a military post, the garrison and such other Europeans as may be living in the city, reside within a restricted area known as a "canton-

ment." The cantonment is in effect a miniature European town within the native town, or, more frequently, on its outskirts. It is so laid out as to offer the greatest amount of security in case of rebellion, and to afford the best possible conditions of sanitation. In the more important stations, such municipal improvements as lighting, water supply and sewerage are provided, in the order enumerated. A system of conservancy is adopted and carried out by the community as a whole, or by the owners of the individual bungalows.

Throughout India, sanitary practice favors the latrine-trenching method of disposal of excreta, and even in the larger cities, public comfort stations, embodying a combination of latrine and septic tank, are advocated. Pit privies are in general condemned by local sanitary authorities, on the ground that they are too liable to contaminate water supplies and that in most cases the soil is unsuitable for the proper disintegration of the pit contents. The use of water by Hindus for ablution purposes is undoubtedly a serious obstacle in the way of the proper operation of a privy of the pit type, as the contents of the pit cannot be kept dry, unless the soil is very porous. The use of commodes in the European bungalows is a striking feature of the conservancy methods in vogue.

The railways of India are showing much foresight in providing sanitary arrangement for their labor camps. Special care is given to the proper housing of labor at all railway centers. Attention has been directed to the fact that borrow pits near the right of way may serve as breeding places for mosquitoes during the monsoon season; accordingly efforts are made to avoid opening up such pits in the vicinity of towns along the line.

During recent years serious thought has been given to the peculiar problems that are encountered in the sanitation of mining camps, tea estates, etc. The chief problem in most instances in one of malaria control, while of equal importance is the adoption of sanitary methods of conservancy. The writer was for some time in charge of the sanitation of a large mining town in Burma and had the experience of witnessing in the tropics the same satisfactory results that follow the introduction of up-to-date sanitary measures in similar communities in the United States.

Sanitation of Indian Cities.

The duties of the sanitary staff in an Indian city are more extensive than those assigned to the local board of health in our American urban communities. In the enforcement of the usual ordinances relating to public health and the control of infectious diseases, the work of inspection forms a large part of the routine operations. The actual number of qualified inspectors needed is much greater than those required in an American municipality of the same population, because of the necessity of closer supervision of the work and on account of the degree to which the work is subdivided in conformity to caste and occupational distinctions.

In addition to these routine activities, the health department of an Indian city is directly concerned with such matters as the water supply, sewage disposal, and the collection and disposal of refuse. The first group of activities mentioned need no detailed description as they do not differ materially from those undertaken by public health organizations in American cities. The questions of water supply and the disposal of the city's wastes, however, present a number of peculiar problems that merit further consideration.

Water Supply. The question of water supply in all centers of population where an attempt is made to furnish water by modern methods is a most serious one, both as to quality and quantity. Except in the largest cities where the municipality can afford to develop an adequate supply, it is usual to lay a few mains in the principal streets, with hydrants at convenient intervals from which the native paniwallahs or bhistis fill their leathern sacks (mashaks) for distribution throughout the neighborhood. In country towns particularly, the street hydrants form centers of attraction for the natives who gather around for a prolonged bath of an evening. As the Indian cannot resist the temptation to let the water run during the whole course of his ablutions, a problem in water waste prevention arises, as well as one of keeping mosquito-breeding puddles from being made in the immediate vicinity.

Municipal water supplies, unless derived from wells so protected as to yield a safe drinking water, must be subjected to some form of treatment, on account of the persistent contamination which every important stream in India receives. English sanitary engineering practice favors slow sand filtration as the standard method of water purification. The supply for Bombay is derived from three lakes not far from the city, and is filtered before being pumped into the distribution system. The Calcutta supply is obtained from the Hooghly River; settling tanks and slow sand filtration are employed in its treatment.

Even in the largest cities, much of the water consumed by the inhabitants is derived from private wells. These are sunk anywhere that suits the owner's idea of convenience, which in many instances is in the ground floor of the dwelling. During cholera outbreaks, the protection of these wells represents an immense task for the sanitary staff.

For small supplies, such as exist in cantonments and hill stations, mechanical filtration has found a field of usefulness. The filters are manufactured in India* and are of either the open or pressure type. The chlorination of water is as yet practically unknown in India. This is due in great measure to the comparative lack of experience that British water works men have had with this form of treatment. At present no machines are on the local market and chlorine is difficult to obtain. The writer feels, however, that the advantages and applicability of chlorination of the supplies of



The famous burning ghats at Benares. Here the bodies of the dead are cremated according to the ancient custom. The ashes are scattered over the waters of the Ganges in the foreground.

* These are generally of the Jewell type.

the smaller communities of the country will in time be appreciated by Indian sanitarians.

In the matter of the examination of water, in those cities where laboratories for this purpose are maintained, certain standard methods have been adopted similar to those of the American Public Health Association. The *B. coli* determination is made and considered as the "bacterial indicator." From time to time standards of purity for lake, river and well waters have been proposed, but as the question of the protection and treatment of water supplies, considered as a matter of public interest, is confined to a very few of the more progressive and important cities, such standards affect but a small part of the total population. The water that the ordinary Indian drinks is as pure, or rather impure, as he finds it; and this in turn depends simply upon the extent to which he and his friends and relatives have contaminated the family well or village tank. The few spots in India where the European traveler, for instance, may drink plain water with impunity stand out like small islands in an ocean of soda water, bottled water of various sorts, and tea—the water for the tea being presumably boiled. Outside of the largest cities, each individual must look out for himself in the matter of obtaining safe water to drink.



A primitive bakery in the country. The baker has his loaves in his hands. The two men to the left are typical Indian sanitary inspectors. If properly qualified they may receive from $25 to $50 a month.

Sewage Disposal. In the strict sense of the term, sewage disposal is a problem encountered in very few Indian communities, for the reason that only the most populous cities are sewered, and even these do not possess anything like a complete system. In this respect the situation is similar to that of the water supply, the service being only a partial one. Among the cities that are partly sewered may be cited Bombay, Calcutta, Madras and Rangoon. Such cities as Cawnpore, Lucknow, Agra, Delhi and Poona are progressing in the development of the water-carriage system. In most cases one of the limiting factors in the extension of municipal sewerage is an insufficient water supply.

It is claimed that Bombay has the most extensive sewer system of any in the East, yet in the native quarters there are thousands of houses with the usual style of basket privy. In fact the chief concern of the health authorities in the larger cities as well as in the smaller towns when dealing with this problem is to maintain in a sanitary condition these private privies and the public latrines. Only a small portion of the excrementitious wastes of the city appears in the form of sewage; the great problem is the disposal of the night-soil collected in baskets at individual premises.

In congested parts of the city there is usually found what is known as a sweepers' passage extending along the back walls of the houses on either side. For each house there is an iron basket set into the wall and directly under the privy seat in the house. The sweeper removes and empties these baskets at least twice

daily, carrying them on his head to the nearest sump connected with the sewers. Owing to the vegetable diet of the people, the amount of excreta produced per capita is considerably in excess of the quantity to be expected in the temperate zone. As the Hindu uses water for ablution purposes, this must be added to the dejecta in estimating the amount to be disposed of. In Bombay, for conservancy purposes, two pounds per capita per day is assumed. As a matter of fact the actual amount to be removed by the sweeper is somewhat less, as a considerable amount of the liquids escapes into the open drains in the sweepers' alley.

The insanitary conditions attending this method of removal need no comment. Only by constant supervision and inspection is such a system made tolerable in a tropical country. During periods of outbreaks of intestinal diseases, the cleaning up and disinfection of the numerous sweepers' passages is made the duty of a special staff of inspectors and sweepers.

The sweeper or halalkhor, who removes the night soil, has come to be regarded as an institution. The sweeper class comprises both men and women who do no other work than that of conservancy. It would seem at times that no human being could withstand the conditions attendant upon the work they do. It is a notable fact, however, that sweepers in general are singularly immune to infection from the material they handle.

Refuse Collection and Disposal. In the European business districts and cantonments, as well as in the better residential sections, sanitary waste bins are provided and emptied by the refuse collector. Ordinarily, collection is made by bullock cart, though motor trucks are coming into use in the largest cities.

In mofussil (or country) towns in those sections where the houses have no yards or compounds, the refuse from the bazaars and private dwellings is simply thrown into the street or is swept into any odd corner. When this occurs, the village crows are the unofficial, though very efficient, scavengers. Aside from



The Hindu laundryman or dhobie, washes his clothes in the wayside streams. In the larger places the municipal authorities make inspections of the laundry streams.

the unsightliness of the conditions resulting from this practice, a grave danger arises from the breeding of rats in the accumulations of rubbish. The disposal of liquid wastes on the sidewalks and streets also favors the breeding of both flies and mosquitoes, and necessitates special supervision and restrictive measures, on the part of the sanitary department.

The amount of mixed refuse collected is on the average about 700 pounds per capita per year, and the weight per cubic foot is about 30 pounds. Sanitary opinion in India advocates the incineration of refuse of all sorts. In Madras and Calcutta destructors are operated. It is believed that there is an important field for the installation of small-size incinerators in country towns, particularly in regions of slight rainfall.

In concluding the foregoing summary of sanitary activities in urban communities of India, the following figures, quoted from a table presented by Turner and

Goldsmith in their work on "Sanitation in India," are of interest in showing the extent to which the most progressive of Indian municipalities are giving their financial support to public health work.

EXPENDITURE ON SANITATION IN THE THREE LARGEST CITIES OF INDIA

City	Population 1917	Area Acres	Assessed Valuation	Annual Expenditure on Sanitation
Bombay..	979,445	14,575	£3,300,000	£113,000
Calcutta .	890,000	20,547	2,500,000	78,000
Madras ..	509,000	17,280	94,933	23,000

Control of Infectious Diseases.

India has for ages past been the scene of recurring epidemics of infectious diseases. Before the introduction of modern epidemiological methods and measures directed against the specific cause of each particular infection, the stage of Indian life was always set for the tragedy of sickness and death. Even now it is only with the utmost care and watchfulness that medical men and sanitarians are able to prevent the spread of sporadic outbreaks that occur in different parts of the country. While the ordinary public health work, such as we know and in which we are engaged in this country, is being carried on as routine work in India, the control of diseases such as plague, cholera and smallpox in epidemic form furnishes one of the most important and at the same time the most spectacular features of the public health campaign waged in that country.

Mention has been made of the assistance rendered by the Indian Medical Service and various sanitary organizations in carrying out research work, and in planning effective methods both of preventing and combating the spread of infectious diseases in general, and of plague, cholera and smallpox in particular. A few of the more important aspects of the control of plague and cholera will be reviewed briefly at this point. Measures directed against smallpox need no further comment, seeing that they are similar to those adopted in America, modified indeed to deal more effectively with the ignorance and religious susceptibilities of the people. Now that vaccination against smallpox can be made, and is made, compulsory, the way has been paved for rapid progress in the control of this disease in India.

Plague. The number of deaths from plague in India during the fourteen years from 1901 to 1915 was approximately 8,000,000. The occurrence of plague is intimately associated with the crude construction and insanitary surroundings of the native quarters, especially as related to the storage of foodstuffs and disposal of refuse. Ideal conditions are at all times present for the breeding of plague-infested rats. The rat-proofing of Indian dwellings is one of enormous difficulty, and even with the greatest zeal cannot be accomplished, for economic reasons, except very gradually. The problem of rat eradication is being attacked from another angle, however, through ordinances requiring the sanitary disposition of waste material, and the protection of foodstuffs in the bazaars from access by rats. This has been found to be a most important measure, since infection, once started in the market place, is carried to all parts of the city. The New Market in Calcutta is a notable example of an eastern bazaar conducted along lines of sanitation and cleanliness found in the best municipal markets in our own country.

In the case of an outbreak of plague, evacuation of the infected premises is considered a standard procedure whenever practicable. The people in general readily agree to removal to temporary camps for the purpose of escaping the infection. Terminal disinfection is advocated, the insecticide used being crude

fuel oil, prepared under the trade name of "Pesterine."

According to the Plague Manual, based upon the Epidemic Diseases Act of 1897, the destruction of rats is one of the most important measures that can be taken to prevent the spread of plague. Considerable opposition is often encountered in destroying rats in the houses of Hindus and of certain other sects.

During recent years, great advances have been made in the popularizing of inoculation against plague. The campaign of education takes many unique and interesting forms, such as the public inoculation of the medical officer or of the European magistrate of the community; while in many instances a social gathering is organized by leaders of the various Indian communities for the purpose of persuading friends and relatives to be inoculated. In the Manual referred to, an interesting and very successful experiment conducted along these lines at Bangalore is aptly described in the following words: "In order to render the function as attractive as possible, the organizers usually provided some sort of entertainment for the amusement of those assembled. This generally took the form of a band, or of a tomtom in the case of more modest gatherings. In addition, refreshments were provided for those inoculated, each person being supplied after the operation with bread, plantains, rice, coffee, or something of the kind; and on rare occasions small sums of money or articles of clothing were distributed."

The serum used is that of Haffkine and is prepared by the Indian government laboratories. The quantity inoculated is 4 cc. in the case of adults, with less amounts for children. The active immunity conferred has been well established by experience in actual epidemics. The following table, taken from the Plague Manual and showing the benefits of inoculation at Bangalore during 1907–1908, is typical of the results obtained elsewhere.

COMPARISON OF CASE RATE AND MORTALITY FROM PLAGUE AMONG INOCULATED AND UNINOCULATED PERSONS AT BANGALORE, INDIA.

Treatment	Persons	Attacks	Per cent Column 3 to Col. 2	Deaths	Per cent Column 5 to Col. 2
1	2	3	4	5	6
Inoculated...	33,055	20	0.06	9	0.02
Uninoculated..	56,945	1,460	2.6	1,221	2.1

Cholera. The mortality due to cholera during the period 1901–1915 is estimated at 5,000,000 for the whole of India. In point of numbers, cholera appears to have claimed less victims than plague, but to Europeans at least, a cholera epidemic is fraught with graver dangers than arise from plague, because of the greater exposure to infection found in the case of the former disease. The avenues of infection are legion; no more, perhaps, than the possible number in any other country, but in India all of them are always wide open to the advance of the disease, unless prompt and energetic measures are taken to close them. No uncooked food should



The landing place of the village on the Irrawaddy. Everything is primitive. The groves in the background are bamboo, the shelter huts on the beach are thatched and as for sanitation, that has not ever even been dreamed of.

be eaten in an infected area and personal attention to the boiling of milk and water is essential. In this connection, the Indian's notions regarding "boiled" water are notoriously at variance with the accepted definition. The writer has had occasion to note three Indian ways in which "boiled" water is frequently served to the unsuspecting European resident or to the European medical officer working in an infected area, viz.: (1) the water is heated only until vapor is seen by the native to rise from the receptacle; (2) the water is actually boiled, but is subsequently strained through a dirty cloth (usually the one in which the cook carries the vegetables from the bazaar) to remove the particles of dust collected on the surface; (3) the boiled water is diluted with raw water in order to cool it down more quickly. One has but to be in the midst of an anti-cholera campaign to realize the difficulties surrounding the preparation of so simple a requisite as boiled water.

In addition to the danger from infection via the water supply, the possibility of transmission of cholera due to fly contamination and the consumption of uncooked fruits and vegetables must always be considered and guarded against in an anti-cholera campaign. Furthermore, it is sometimes necessary to prohibit the sale of milk on account of the possibility of infection via this route. In order to make this quite apparent, mention need be made only of the practice of Indian dudhwallahs of scouring their milk containers with mud from the street, or of adding water to the milk from a contaminated well, or of scattering a handful of stable bedding-straw over the mouth of the milk pail to prevent splashing of the milk as he carries it along the street.

Of more importance to the native than to the European may be mentioned the rôle played by direct contact with persons suffering from cholera, and the presence in every endemic area of cholera carriers. In such areas a sort of natural resistance against attack is a factor in keeping the case rate from being higher than it actually is; but once the native is striken with cholera, he succumbs much more rapidly than the European.

The key to the epidemiology of cholera in India is to be found in the habits and customs of the people. Fairs, festivals and huge concourses of pilgrims are an integral part of the social and religious life of all classes. The people who attend these fairs are absolutely indifferent to the need for strict sanitary precautions. In the holy cities, especially those on the sacred rivers, where bathing and washing are the most prominent features of the ceremonies observed by the pilgrims, water-borne cholera is the typical form in which it makes its appearance.

Drastic measures are now taken against outbreaks occurring as a result of the holding of such festivals and fairs. Temporary huts for the pilgrims are put up, properly laid out in blocks, with a view to good drainage and adequate sanitary arrangements. Drinking from promiscuous sources is prevented as much as possible and such suitable supplies as may be available are protected. In villages, disinfection of wells by potassium permanganate is standard practice. Enough permanganate crystals are dissolved in the water to produce a pink color lasting twenty-four hours. The native is now quite used to this procedure and accepts it as a matter of course.

In the treatment of cholera, the methods introduced by Leonard Rogers of Calcutta have won wide recognition. Through the use of the transfusions of saline solution, together with the internal use of potassium permanganate water,

recommended by him, a case recovery of 80 per cent is possible, provided the patient is attended by the medical officer before the stage of collapse supervenes. The drinking of potassium permanganate dissolved in water is also considered to be of value as a protection against initial infection, and accordingly in various parts of India permanganate pills are distributed to local relief organizations as are the quinine tablets supplied in the prophylaxis of malaria.



PUBLIC HEALTH DEPARTMENTS AND PRIVATE HEALTH AGENCIES.

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This author takes issue with Dr. Hill on the functions of health officers. He believes that they should undertake all kinds of public health work, that responsibility divided with private agencies will hurt the health officer's work, that public health education is necessary and that this must be conducted by the health officer if he is to fill adequately his sphere. Private agencies should bend their efforts to support the health officer. : : : : : : : : :

IN his very interesting paper, "What Is the Matter with Public Health Today," published in the November number of the JOURNAL, Dr. Hibbert W. Hill, executive secretary of the Minnesota Public Health Association, puts the responsibility for lack of efficiency in the control of infectious diseases squarely on the shoulders of public health officers. No student of public health administration will disagree with Dr. Hill when he says that the protection of the public from infectious disease is the *sine qua non* of health work, and that health officers all over the country have failed to exercise their police powers intelligently and effectively to this end. But Dr. Hill's suggestion that public health officers should limit themselves to compulsory police work against infectious diseases and turn over to the private volunteer agencies those health activities which are essentially educational and depend for their effectiveness upon the voluntary action of the public, is not, it is believed, based on the same sound premise. On the contrary, there is good reason for thinking that the plan which he proposes for dividing responsibility between official and volunteer agencies will contribute to rather than eliminate present weaknesses in health administration. While recognizing his lack of authority to speak for the health departments of the country, it is the purpose of the writer to present certain arguments against Dr. Hill's proposal. The health officers of the states and cities will no doubt think of many more.

Public health work is, as its name indicates, a matter of *public* concern and *public* necessity. The public ought, therefore, to be represented in all health activities which it supports, by an official agency, which is the department of health, and by an official agent, who is the

health officer. The health officer is the one who ought to be held responsible for the health of a community without any limitation as to the meaning of the phrase "the health of the community." He ought not be permitted to divide his responsibility with anyone. No matter how well organized and well-financed private agencies may be, and no matter to what extent the health officer may find it desirable to use them, there should be one public health administration with the health officer at its head, and one public health program under his control. If the health officer is wise he will encourage the coöperation of private agencies but he should not divide his responsibility for the public health with them.

Studies of state and municipal health administration in the United States show clearly that the failure of many health officers to measure up to their jobs is due in large measure to divided responsibility for control. Private health agencies came into being largely because groups of citizens saw needs which were not being met by the official agencies. Instead of directing their efforts to strengthening official agencies where weaknesses were seen, these groups of citizens quite naturally decided that the thing to do was to create new organizations to do what the already established official organizations ought to have done but did not do. This is the American way of trying to develop efficiency of government and it is one of the reasons why "efficient democracy" is as yet only a vision. Bound by no limitations except as to funds, and responsible to no one but their supporters, the private health agencies have grown rapidly until, at the present time, the health officer is beginning to wonder whether he is the ringmaster or only the clown of the circus.

The health officer himself is largely responsible for this not unusual situation, for, in many instances, he has aided and abetted the private agencies in taking from him responsibilities which he alone should carry. He has done this, either because he was ill-fitted for the work himself, or because he despaired of doing what he thought necessary without adequate funds. In either case the result has been the same; finding private health agencies willing to carry the load for him, he has often contented himself with doing a little amateur police work, as Dr. Hill says, and as time has gone on, he has found little inspiration in such police work and has depended more and more on the private agencies. Finally he becomes, instead of a figure, a mere figure head in the public health program.

The situation just described is not an imaginary one. It is found in cities and states all over the country, and wherever there is found this division of responsibility between the official health authority and the private volunteer health agency, there is usually found irresponsibility on the part of both. No health program can be really effective until it has a real head who can plan every detail of the program, and say how it shall be carried out. In other words, there must be one control, no matter what agencies may be coöperating.

But aside from the fact that Dr. Hill recommends division of responsibility for public health work, which, it is believed, will inevitably result in inefficiency of public health administration, he attempts to differentiate compulsory and voluntary activities as two relatively independent groups, a differentiation not practically possible in public health administration. The compulsory activities of a health department are absolutely dependent upon the preparation of the public for compulsion by thorough educational measures. This is well illustrated in the case of protection against infectious disease,

which Dr. Hill rightly regards as the essential function of a public health department. If health officers all over the country had limited themselves to police regulation of infectious diseases and left the educational side of infectious disease control to private agencies, it is quite probable that we should have even seen then the 1 per cent efficiency in infectious disease work with which Dr. Hill credits health departments. As long as the public views the health officer as a mere policeman, just so long will there be inefficiency of reporting infectious diseases, upon which all subsequent measures of control depend. There will be even more frequent concealment of cases, and a tendency on the part of the people to avoid any contact whatever with the police health officer. Police regulation is absolutely essential; we ought to have more intelligent police regulation than we now have, but unless police regulation goes hand in hand with education, it will never produce permanent results. This is as true in the prevention of crime as in the prevention of disease, and the modern, progressive police department recognizes this fact in carrying on its program of crime prevention.

The public recognizes the health officer as the one to whom it should look for advice and wise counsel in health matters, and it rightly expects to get its education in health matters from some one who officially represents it. Whether the health officer is efficient or not, he is the one who should educate his public. Most people stand in the same relation to the health officer as the school boy to his teacher. Away back in the school boy's head there is a sort of vague notion that education is all right for some one else, but he really wouldn't take a good dose of it himself if he didn't have respect for the authority of his teacher. Compulsion in his case goes hand in hand with education. So it is with the public; if the teaching is brought to the public by one whom the public holds in respect as having police power, and who is at the same time competent to teach, the teaching will be much more readily accepted, much more highly valued, and much more generally made use of. To leave this responsibility for teaching, to private agencies having no official status in the eyes of the public, would, it is believed, be a serious mistake. Most health officers will probably subscribe to the statement of Dr. C. J. Hastings, the able medical officer of health of Toronto: "91/100 of the permanent efficient results of the department of public health is in education."

Efficient public health administration depends upon putting well-trained, whole-time health officers into local health departments and keeping them there. How is this to be done? Certainly it can never be done through salaries alone, for the kind of men and women needed in public health departments can, in the majority of instances, earn higher salaries in private employment. It must be done, then, by making the opportunity for public service, and for self expression in that service, so great that competent men and women will be drawn to public service even though salaries are inadequate. It would be hard to estimate what the salary of an efficient health officer ought to be; he cannot be paid enough if he is really efficient, but if he is given opportunity to be an educator as well as a police officer, he will probably feel that he has compensation which is not measured by salary alone. To take away from the public health officer such opportunity for service as is found in educational health work would be to rob him of part of his compensation, and make health administration so unattractive, except perhaps for the policeman-epi-

demiologist, that few would care to enter it. Public health service would indeed be a poor outlet, under such circumstances, for the men and women who have spent, and are spending their time and money to fit themselves as health officers. Private health agencies would perhaps offer them the opportunities which they seek, but certainly the standards of official health service would be lowered.

No small part of the inefficiency of public administration in this country is the result of the failure of health officers to present health needs convincingly and intelligently to the public, and, as a natural sequence, to the failure of appropriating bodies to recognize the vital necessity for meeting health needs with adequate appropriations. If then, as Dr. Hill suggests, the health officer is shorn of all responsibility for health work which has a real appeal to those who hold the purse strings, the financing of official public health work will be even more difficult than it has been in the past. No matter how carefully thought out the health officer's program may be, no matter how imposing his array of facts and figures, he will find it well-nigh impossible to stir the sympathies of the appropriating body or the public, if his appeal for funds is based only upon the need for better police control of infectious diseases. The American people do not want to be policed, and except in the face of an epidemic, they are reluctant to spend money for police health work. This attitude cannot be condoned, of course, but, nevertheless, it must be reckoned with. On the other hand, it is comparatively easy for health officers to get money for educational work for the prevention of infant mortality, the protection of motherhood, the supervision of the health of school children, and other activities which have a direct appeal to human sympathies, and which Dr. Hill classifies as voluntary. If the health officer turns over this weapon of education to the private agencies and relies only upon his policeman's baton, the private agencies will get the money for health work and he will be left out in the cold. The public wants to have its emotions stirred, and stimulation of its pocket-book nerve will get little response unless such stimulation arouses a real emotional thrill. But, if the emotions of the public can be stirred, it is usually quite ready to give financial support to the measures proposed. The experience of the Red Cross, Knights of Columbus, Y. M. C. A., and other organizations during the war and since, proves what can be accomplished in raising money by appeal to human sympathy. It is believed, therefore, that any plan of health administration which would take away from the health officer the opportunity to make his plea for increased appropriation on the basis of the need for educational work, would seriously hamper him in securing sufficient funds even for the necessary compulsory police work of his department.

The questions which Dr. Hill raises are by no means academic. In view of the widespread health propaganda of private health agencies, and their well organized activities along many health lines, it is highly desirable that there be a definition of the principles upon which their relation to official health departments shall be based. It is the opinion of the writer that the private health agencies have mistaken their function and misunderstood their relation to the government. The ideal state is one in which the machinery of government shall be so efficient, and so well supported by public funds, that there will be no need for private agencies. This is an ideal which probably will never be reached, but it is an ideal worth working for. If,

instead of trying to strengthen their own organizations and their own grips upon the public health program, private agencies would spend their time and money in strengthening official health agencies, better and more permanent health benefits would result. If, in those communities where the health departments are without competent whole-time health officers, inadequately supported, and improperly organized, the private agencies would carry on a campaign of education which would result in a public demand for these essentials, there would be more efficient health departments and more whole-time, well-trained health officers than we now have. If the private health agencies would study the needs of the health departments in their communities, and at budget time back up the health officers in their demand for larger appropriations of public money, they would do more for raising the efficiency of public health work than by all manner of "drives" to raise funds for their own spending. If, where there is a competent, well-trained health officer, the private agencies would place themselves at his disposal and permit him to direct their activities according to his plan, they would save money and accomplish more. The experience of the private health agencies of Dayton under unified health department control illustrates very well how this can be done for the health benefit of a community.

Briefly summarized the arguments made against the proposal for divided responsibility for health service as set forth in Dr. Hill's paper are:

1. That divided responsibility for public health will result in lowering standards of official health administration;

2. That compulsory health work is dependent for its efficiency on the educational preparation of the public for compulsion, and that health education to be most effective must be brought to the public by the one who has official authority, namely, the health officer;

3. That, if official health departments are concerned only with police regulation of infectious diseases, there will be little in official health service to attract well-trained, whole-time executives;

4. That the removal of educational health work from the control of official health departments will handicap such departments in securing adequate appropriations, even for the very essential police work necessary.



Mental Hygiene in the Schools.—That health is something more than mere physical health is becoming more and more apparent. The importance of good mental health in addition to good physical health has become quite obvious. Heretofore children in the schools were taught only the principles of good physical health. This must be supplemented today by instruction in mental hygiene. Not only should every child receive a thorough physical examination once a year, but a thorough mental examination should also be included. Defects that are discovered should be given prompt treatment and remedied. Children should be taught the general anatomy and physiology of the nervous sytem and its relation to other parts of the body and the mind. The general principles of psychology should also be included. Teachers should be able to recognize early mental defects, so that the child may receive early treatment. The mind of the child should receive proper food,—the kind that will stimulate it, and bring out its greatest possibilities. It must not be overtaxed, however. The mind should receive complete rest, through sound sleep, relaxation and recreation. The environment should be cheerful and bright, so as to produce a favorable effect on the mind.—Horatio M. Pollock, Ph. D., *Boston Med. and Surg. Jour.*, Aug. 14, 1919.

(*M. P. H.*)

ON A STANDARD SYSTEM OF BACTERIOLOGICAL DILUTIONS.

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Read before Laboratory Section, American Public Health Association, at New Orleans, La., October 30, 1919.

Proper bacteriological dilutions are necessary for correct interpretations. The system here proposed adopts the dilution scale for its standards. On a consistent system of laboratory technique, including logical methods of computing results and a natural scale of interpretation, depends the real practicability of bacteriological standards.

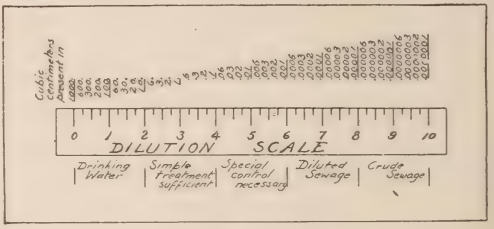
SANITARIANS generally realize the limitation imposed upon bacteriological standards through want of precision in quantitative methods. Those who have attempted to remedy results by applying the theory of probability to quantitative bacteriology have fallen into two errors. Being rather more mathematicians than bacteriologists, they have developed unnecessarily complicated expressions which practical laboratory analysts cannot understand or apply, and though arriving at a solution satisfactory to themselves, they have overlooked the most important difficulty of the bacteriologist. Their efforts aim at the determination of the number of bacteria in each particular sample, while the principal problem is to predict the condition of a source knowing the condition of the several samples. Moreover, the greatest need at present is a standard system of dilutions built on the system of interpretation to follow.

Suppose the theoretical number of bacteria per cubic centimeter were given, how much further toward interpretation is the bacteriologist? He uses such a hypothetical figure, with all its limitations, as an index by which he can think of his results in terms of experience. He associates it with actual conditions under which he expects the given bacteria will occur in given dilution quantities of the sample. Why not cancel in one bold stroke the fearful process of calculation with the doubtful mental return to judgment?

This is accomplished by the dilution scale proposed in a previous paper.* It is graphically represented in Figure I.

FIGURE I.

Dilution Scale Diagrammatically Measuring Pollution represented by presence of *B. coli* in quantities of water shown.



The practical technical principle of the dilution is taken as the basic unit of measure, and consequently it is necessary to think directly in terms of the actual steps of procedure. It is drawn to resemble the ordinary measuring rule so as to emphasize the similarity to pollution measurement. The various points on the scale represent the grades of pollution which the presence of *B. coli* in the given quantities signify. One can think of it as a rule to measure the pollution of an unknown sample; of which the quantities

* AMERICAN JOURNAL PUBLIC HEALTH, September, 1919, pages 664–667.

are tested to indicate a degree somewhere between the point representing the highest dilution showing B. coli and the lowest in which it is absent. According to the number of dilutions tested, these points can be brought as close together as desired. The scale above figured has forty divisions obtained by dividing into quarters the ten whole dilutions ranging from a condition of the purest drinking water to that of crude sewage. Though the divisions are finer than bacteriologists ordinarily apply, the given scale covers all conditions possible in practice.

By adhering to the dilutions shown on the scale and expressing results in terms of dilutions the resulting computations reduce to simple arithmetic. The mathematical reason for this is perfectly sound,* for one has in making the given dilutions solved technically the complicated relation involved. Perhaps the fact that the dilution scale has evolved in the familiar laboratory technique is more than mere coincidence, but in any case it admits of a great simplification in the interpretation of results. It requires but the adoption of a standard system of dilutions and in return offers to solve the main trouble in a very simple and practical way. While affording a much needed criterion for the distribution of dilutions, it also cuts away a maze of confusion, exposing an otherwise clear technique which an unnatural system has obscured.

First to appear on examination is the fallacy of the false economy of dilutions. It is obviously not necessary to apply every dilution on the scale in testing each sample. In reality a few dilutions are chosen, either consciously or unconsciously representing the small range or span of the scale in which the bacteriologist expects to find the deciding dilutions. But where so few are used, and the range is so great that a qualitative uncertainty may change the location of a result by a whole dilution on the scale, then that dilution is unnecessarily important, and the use of a few more tubes would greatly increase the precision. By the use of a fermentation tube battery described in another paper* it is possible rapidly to inoculate a large number of tubes and eliminate this source of error. It is, therefore, considered an integral part of the technique.

Simplicity demands more or less standard batteries, although they can be made to contain any number of tubes. This limitation on technique thus tends toward standardization and is in no way inconsistent with precision. On the other hand, since the accuracy demanded in the result is in a general way proportional to the variation expected in choosing the dilutions, such a standard number of tubes gives a standard of precision for each range or dilution span of the scale which the given dilutions must cover.

A standard number of dilutions covering a given range or dilution span on a standard dilution scale determines the quantities used for inoculation. The dilutions are evenly distributed throughout the dilution span in accordance with the dilution scale. The length of the dilution span is, therefore, inversely proportional to a precision standard. It is necessary to estimate the dilution span from the preliminary evidence at hand. It should be always chosen to give a positive and a negative tube, and is, therefore, the span between the highest dilution judged surely to be positive and the lowest surely negative. With well known waters it may be closely determined and the precision of the result will be greater, while with little known samples it is correspondingly broader and the precision is

* Science, N. S. Vol. XLIX, No. 1269, pages 400–402, April 25, 1919.

* American Journal Public Health, December, 1919, pages 904–905.

relatively lower. In this way the standard system of dilutions adapts itself to the requirements of the test and to the subsequent computations of which it becomes a part.

There only remains in applying these general considerations to establish definite values and to give concrete examples of practice. Considering the labor involved in collecting the sample and other steps in the test, less than five tubes are under ordinary circumstances insufficient, while more than ten are usually superfluous. For practical reasons, therefore, the battery of ten tubes was selected. It contains two samples of five tubes each, though where greater precision is desired all ten may be used for the same sample by making duplicate series, the average of which gives doubled accuracy.

For purposes of illustration typical examples of the application of the system to common dilution spans are given. Suppose the bacteriologist knows that the 10 cc. tube of a sample will give a positive test and the 1 cc. tube will be negative. Five dilutions at intervals of a quarter dilution will cover the span as follows:

Example of one dilution span.

Dilution	2.0	2.25	2.5	2.75	3.0
Cubic centimeters	10.	.6.	3.	2.	1.

The two dilution span will ordinarily be found most convenient with unknown drinking waters. The intervals are, therefore, half dilutions as in the following example:

Example of two dilution span.

Dilution	2.0	2.5	3.0	3.5	4.0
Cubic centimeters	10.	3.	1.	.3	.1

By using intervals of whole dilutions a four dilution span is covered as follows:

Example of four dilution span.

Dilution	2.0	3.0	4.0	5.0	6.0
Cubic centimeters	10.	1.	.1	.01	.001

Very seldom will it be found necessary to make dilutions cover a wider range. With ten tubes greater precision could be obtained by duplicating each series and averaging the dilution positives of both or the dilution span could be divided so as to make even intervals.

Intermediate between the two and four comes the three dilution span which divided at regular intervals gives awkward dilutions. Since, however, the middle dilution is the more important because it is more likely to contain the dilution positive, this dilution is divided as in the two dilution span while the first and third are whole dilutions.

Example of three dilution span.

Dilution	2.0	3.0	3.5	4.0	5.0
Cubic centimeters	10.	1.	.3	.1	.01

The same effect, using ten tubes, can be obtained by making each five tube series as in the two dilution span but allowing the two series to overlap one dilution, which is the middle dilution.

Example of three dilution span.

Dilution	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Cubic centimeters	10.	3.	1.	.3	.1		
Cubic centimeters			1.	.3	.1	.03	.01

By thus concentrating on the middle dilution, which is judged most probable to contain the dilution positive, there is a favorable chance of reaching the precision of a two dilution span; otherwise the result will be that of a four dilution span.

There remains a very important combination which has been independently developed. The United States Treasury standard for drinking waters is defined by inoculating ten tubes each with 10 cc. of water; of which not more than two may be positive. Where quantities of sample larger than 10 cc. must be tested (which now includes the majority of good drinking waters) this test is the only practical one since more than 10 cc. cannot conveniently be put in the test tubes described in the battery. The technique does not fit exactly to the theory of the dilution scale which is built on a geometrical series. It is, however, an arithmetical

approximation and if the dilution span is not too great, sufficiently accurate if each positive tube is considered to represent a tenth dilution as follows:

Dilution equivalent of U. S. Treasury Standard method.

Dilution..	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
Cubic Centimeters	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.

While such an expedient is justified under this practical case it is not recommended where it is just as convenient to make inoculations consistent with the theory of the scale.

To show a concrete example of the actual application of the system in practical routine Figure II is described.

FIGURE II.

WATER EXAMINATION FOR B. COLI

System of fermentation tube inoculation for three types of conditions showing scale for dilutions positive, corresponding number of B. coli per c.c., and action demanded by quality represented.

TYPE I	cubic centimeters 10	10	1/10	1/10	Dilution Positive	B. coli per 100 c.c.	Action demanded
Drinking Water Developed supplies or passed without treatment. Routine control examinations.	−	−	−	−	<1.0	<1	Excellent
	+	−	−	−	1.2	2	Passed by A.E.F. Standards
	+	+	−	−	1.4	3	Repeat and improve treatment until passed.
	+	+	+	−	1.6	4	
	+	+	+	+	1.8	8	
	+	+	+	+	>2.0	>10	Repeat under Type II.

TYPE II	cubic centimeters 1/6	1/3	1/1	1/3	Dilution Positive	B. coli per 100 c.c.	Action demanded
Water Sources Proposed for Lyster bag treatment. Routine preliminary examinations.	−	−	−	−	<2.0	<16	Repeat under Type I.
	+	−	−	−	2.0	10	Suitable for Lyster Bag Treatment
	+	+	−	−	2.5	30	
	+	+	+	−	3.0	100	
	+	+	+	+	3.5	300	
	+	+	+	+	>4.0	>1000	Repeat under Type III

TYPE III	cubic centimeters 1	1/3	1/9	1/27	Dilution Positive	B. coli per 100 c.c.	Action demanded
Special Sources requiring special authority for use and special treatment and control.	−	−	−	−	<3.0	<100	Repeat under Type II.
	+	−	−	−	3.0	100	
	+	+	−	−	4.0	1000	Only to be used after treatment recommended and controlled by special authority.
	+	+	+	−	4.5	3000	
	+	+	+	+	5.0	10,000	
	+	+	+	+	>6.0	>10,000	

Note:
< Signifies less than
> - - greater than

It was used at certain laboratories in France under the writer's direction as a working guide to conform to the regulations used by the Water Supply Service. Under these rules waters appeared to the officer to fall under three general classes: First, *Drinking Water* was defined as passing the United States Treasury standard on repeated tests continually made as a control. Second, *Prospective Drinking Water* tested to determine suitability, comprised practically all undeveloped sources, and preliminary examination only was needed to show whether treatment was necessary or simple treatment sufficient. If this test indicated a Class I source repeated examination automatically became necessary, while if it was worse than Class II it fell into the Third Class of *Raw Waters*, to be condemned if possible for drinking purposes. If the only available source, special treatment and control were required, the risk of unskilled supervision being too great and conditions were so exceptional that special precautions were advisable.

The laboratory tests were, therefore, standardized under three types of procedure. Preliminary samples were analized under Type II and ordinarily simple treatment in Lister bags found sufficient. These were chiefly wells and springs used in billeting areas. In more or less permanent camps there were many supplies developed by the engineers, and routine examinations of these were made under Type I. The raw water samples for these supplies sometimes were Type III, which ordinarily constitutes an emergency class. Each laboratory assistant, therefore, knew definitely what dilutions to make and consequently the results were uniform and perfectly easy to interpret on the dilution scale.

Conclusion.

If dilutions are made in conformity with a standard dilution scale and results computed in terms of dilutions, and interpreted directly according to their location on the scale, many of the present difficulties of bacteriological standards will disappear.

INFLUENZA OBSERVATIONS IN FRAMINGHAM, MASSACHUSETTS.

D. B. Armstrong, M. D.,
Executive Officer, Framingham Community Health and Tuberculosis Demonstration.

Read before General Sessions, American Public Health Association, at New Orleans, La., October 28, 1919.

Why did the husky succumb in the influenza-pneumonia epidemic, was arrested tuberculosis a protection, and what had the race factor to do with immunity? These are queries that Dr. Armstrong asks, and he has basis for his questionings in the observations of the Framingham survey. He gives health officers much food for thought.

THE influenza epidemic of 1918–1919 manifested itself in Framingham in two distinct waves, culminating as measured by mortality in October and December, 1918. There were probably between 1,500 and 2,000 cases of the disease in a population of approximately 17,000. Of these, about 1,100 were reported to the local health authorities.

The major findings in an analysis of the incidence, the mortality, and the subsequent medical conditions among those afflicted may be summarized under the following headings:

I. Mortality Statistics.

Between September, 1918, and June, 1919, inclusive, there were 118 deaths in which the cause was certified as influenza, with or without secondary causes. In addition, there were 24 deaths during this period from primary causes such as pneumonia, myocarditis, nephritis, etc., in which influenza was certified as a secondary cause. This analysis of mortality is based on the 118 deaths with influenza as the primary cause of the fatality.

For 1918 alone the mortality rate from influenza was 464 per 100,000, or 4.6 per 1,000, on a basis of residents dying in or out of town.

Seventy-three deaths, or 62 per cent, were among native born; 21 deaths, or 18 per cent, were among Italian born; 18 deaths, or 15 per cent of the residents, were among Italians. The Italian population is estimated to constitute 7 per cent of the total of Framingham population.

Where influenza was certified as the primary cause, one or another type of pneumonia was given as a secondary cause in 100 cases, or 85 per cent.

The mortality by months was as follows: September, 16; October, 57; November, 3; December, 32; January, 4; March, 0; April, 1; May, 0; June, 1.

The curve for this monthly mortality shows two strikingly high points in October and December.

II. Influenza Follow-Up.

During a period averaging from three to five months following recovery from the influenza attack, it was possible to examine 700 survivors. All of these examinations were done in the homes of the patients, and were carried out by physicians specially trained in clinical tuberculosis. About 2 per cent of the examinations were done in consultations with the local physicians.

(a) *Sex.*—Three hundred of these examinations were of males and 400 of females.

(b) *Age.*—Of the total examined, 41 per cent fell in the so-called industrial age group, 15 to 44 years inclusive.

(c) *Severity of Disease.*—The 700 cases examined were classified on this basis as follows: mild, 418; moderately severe, 217; severe, 65.

(d) *Extent of Illness.*—All of the cases accepted for analysis in this study were severe enough to have been placed in bed for treatment. The length of time in bed for the 700 cases is indicated as follows:

Less than one week	210
1–2 weeks	282
2–3 weeks	123
3–4 weeks	48
4–5 weeks	19
5–6 weeks	8
6–7 weeks	3
7–8 weeks	3
11 weeks	3
Several months	1
Total	700

Five per cent of the cases were sent to hospitals for treatment, and 9 per cent of them were said to have had pneumonia as a complication.

(e) *Family Incidence.*—The cases were classified according to the incidence of more than one case in a family as follows:

No other cases in the family, 10 per cent; one or more additional cases in the family, 87 per cent; information lacking, 3 per cent.

(f) *Medical Findings.*—It was possible in Framingham to contrast the medical findings in this group of individuals with similar findings in the pre-influenza epidemic medical examination campaigns. In the preceding examination work, an effort was made to examine all types of individuals, and the examinees were representative of the community at large as regards geographic, economic, racial, and social factors.

1. *Broncho-Pulmonary Signs.*—In each examination group (the pre-influenza examinations, and the follow-up examination work), there were discovered a number of individuals who had more or less vague and indefinite, yet persistent and undiagnosed broncho-pulmonary signs. In the pre-influenza group, 6 per cent were thus classified; in the post-influenza group, 11 per cent. Among these 11 per cent thus classified there occurred 8 suspicious tuberculosis cases.

2. *Cardiac Defects.*—In the pre-influenza examinations, the percentage classified as having mild or severe cardiac signs or symptoms was 5; this corresponding percentage in the post-influenza group was 8.

3. *Urine Findings.*—The urine examinations among the influenza follow-up cases showed 4 per cent with albumin and casts, and 1.4 per cent with sugar.

4. *Tuberculosis Findings.*—In the examination of the 700 post-influenza patients there were recorded 10 arrested cases, or 1.4 per cent of the entire group. All of these were known previously to the influenza epidemic, and in none of them did the disease appear to have been actively and permanently lighted up. Some of them manifested a slight activity as indicated by pulmonary signs, but all of them seemed to be on the way to a re-arrest of the disease, or to have accomplished a re-arrest.

As previously noted, there were 8 cases, or approximately 1 per cent, of suspicious tuberculosis discovered in the group classified as "broncho-pulmonary signs undiagnosed."

Among the 700 patients, 13 cases, or approximately 2 per cent of hitherto undiagnosed active tuberculosis, were recorded. This is to be contrasted with an incidence for active tuberculosis in the pre-epidemic examination of approximately 1 per cent.

The Health Station intends to follow up this influenza group and to survey as many of the group as can be reached at six-month periods.

III. Epidemiology and Incidence of Disease.

The Framingham experience with influenza emphasized a number of important questions as to the relationship of influenza to tuberculosis, and brought to the consideration of the health demonstration staff a number of problems of theoretical interest, at least, as to racial and other factors possibly playing a part in the relative incidence of these diseases.

It has frequently been pointed out, on a basis of military and other experience, that it was the "husky" individual who succumbed to influenza. Does this mean that the "keep fit" doctrine is unsound? Is it really a hazard to be healthy? Is this observation based on fact, or is the apparent difference between the resistance of the healthy and the weak to an acute respiratory disease such as influenza merely a relative one? May it not be that it is not so much that the husky die, as that the weak live. The Framingham experience would indicate the likelihood of this conclusion.

It was estimated that in the population as a whole, about 12 per cent suffered from influenza in mild or severe form. On the other hand, among the tuberculosis patients, only 4 per cent had the disease. Further, among the cases of arrested tuberculosis in the community, of which there were approximately 150, only 2 per cent had the disease. From this it might be concluded that tuberculosis, and the associated relative degree of physical instability and weakness, were perhaps protective factors against the acute infection.

This experience in Framingham with tuberculosis and influenza incidence is borne out by similar findings in many sanatoria. It may also be reflected in the relative degree of influenza incidence in the colored and white races. It is known, of course, that the colored race stock presents a very high tuberculosis incidence, and it is also stated, in communities where the colored population was large, that this race stock was less afflicted with influenza than was the case with the associated white race stocks.

Does this mean that a chronic respiratory infection confers a relative degree of immunity to an acute respiratory disease?

It was stated in the army experience that in the camps "the Northern boy lived and the Southern boy died." Does this mean that the Northern boy, being more frequently a city boy, having had to a greater extent a contact with a variety of infections, and from those acquired a certain degree of immunity through chronic infection, may perhaps have had a higher resistance to the acute respiratory disease?

If this is true, is it true for all acute infections? It has frequently been observed that in typhoid epidemics the individuals in the best of physical condition are the ones most likely to succumb to the disease. Do they, however, succumb to typhoid, or to the acute respiratory infection to which they are made susceptible by a lowered resistance consequent upon the original typhoid infection?

If there is a relative degree of immunity to acute respiratory infection in certain race stocks, is it really an acquired immunity as a result of chronic infection, or is the difference to be explained purely on a basis of race stock resistance? Certainly the race stock factor plays an important part. Negroes and whites, living under practically the same environmental condition will show, for instance, a wide variation in tuberculosis incidence, the Negroes in some instances having the

disease to an extent two or three times in excess of the whites.

Other race stock variations as to tuberculosis incidence may perhaps throw some light on this problem. In Framingham, for instance, where the medical examination work showed an incidence rate for tuberculosis, including active and arrested cases, of 2.16 per cent for all examined, the rate in the Italian race stock was .58 per cent, whereas in the Irish race stock the rate was 4.80 per cent. On the other hand, the experience in Framingham indicated that there was about four times as much influenza among the Italians as among the Irish, and an investigation of influenza incidence as to race stock in other communities, particularly in Connecticut, has indicated a similar relationship.

Does this mean that the Irish race stock inherently has a low resistance to tuberculosis with a high resistance to influenza, or does it mean that the Irish race stock, having a low resistance to tuberculosis and having consequently a large amount of tuberculosis, acquires, through contact with this chronic respiratory disease, an immunity to an acute respiratory infection such as influenza?

On the other hand, does it mean that the Italian race stock, having a high resistance to tuberculosis and consequently little tuberculosis, fails to acquire a resistance to influenza?

Should it be possible to demonstrate conclusively this inter-relation of the two diseases, what would be the bearing of this finding upon our educational hygienic program? There might possibly arise a school that would advocate the propagation of tuberculosis as a protective measure against acute respiratory disease. We would, however, undoubtedly have to conclude that the immunity that would thereby be acquired would not be worth the cost. Even if our hypothesis should eventually be demonstrated, tuberculosis is too expensive a form of insurance to advocate against influenza.

IV. Summary.

A. Mortality.

1. With 2,000 cases, and an incidence of approximately 12 per cent of the population, the Framingham mortality rate from influenza for 1918 was 4.6 per thousand of population.

2. Out of a total of 118 resident and non-resident deaths in Framingham 58 per cent were males, and 62 per cent occurred in the age group of 20 to 49 years inclusive.

3. Among the deaths 62 per cent were American born, while 15 per cent of the resident deaths were Italian. On the other hand it is estimated that the Italian race stock constitutes 7 per cent of the population. There is indicated an excessive mortality among Italians, which corresponds to an excessive incidence.

4. The curve for mortality shows two markedly high points in October and December of 1918.

B. Post-Influenza Medical Follow-Up.

1. It was possible to give expert examinations to 700 influenza epidemic survivors from three to six months after the convalescence of the patients, in their homes, and partly in consultation with local physicians.

2. Eleven per cent of those examined presented persistent broncho-pulmonary signs undiagnosed. The percentage for this same factor in the pre-influenza epidemic examination drives was 6.

3. The post-influenza work indicated a prevalence of cardiac signs and symptoms in 8 per cent of the examinees; the pre-influenza percentage was 5.

4. *Tuberculosis.* (a) One and four-tenths per cent of those examined were previously known arrested cases. A few of these

were lighted up temporarily, though all of the cases seemed to be making a satisfactory re-arrest.

(b) In the broncho-pulmonary group above mentioned 1 per cent of the 700 were classified as suspiciously tuberculous.

(c) In the post-influenza examination group there were discovered 2 per cent of hitherto unknown active tuberculosis cases, this is to be contrasted with 1 per cent as the incidence of active tuberculosis in the pre-epidemic examinations.

C. Epidemiology.

1. Approximately 12 per cent of the population at large was afflicted with the disease; 4 per cent of the entire tuberculosis group in the community, including active and arrested cases, had the disease; only 2 per cent of a large group of arrested cases in the community had the disease. There appeared to be a relative degree of protection in the tuberculosis group.

2. *Tuberculosis* as discovered in Framingham has presented a wide variation in incidence on a race stock basis. For the population at large the incidence of tuberculosis, active and arrested, is 2.16 per cent; for the Italian race stock the incidence is .58 per cent and for the Irish race stock the incidence is 4.80 per cent. The ratio is as follows: Italian: Irish : : 1 : 8.

3. On the other hand, when one comes to *Influenza* incidence, the ratio of this disease in Framingham as regards race stocks was approximately as follows: Italians : Irish : : 4 : 1.

4. Is this difference in tuberculosis incidence on one hand and in the reverse inci dence of influenza on the other hand to be explained purely on a basis of race stock, or does a chronic respiratory disease confer a relative degree of immunity against an acute respiratory infection?

THE GIRLS' HEALTH LEAGUE.

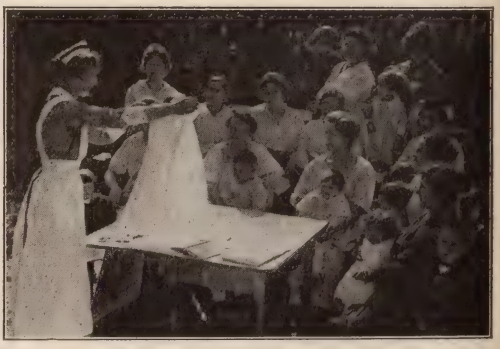
Dorothy, who in the November *News Letter* introduced the Girls' Health League, did not have quite space enough there to make a satisfactory explanation of the movement. It is one of the



matters which the Massachusetts State Federation of Women's Clubs has taken up with vigor, the original suggestion coming from May Bliss Dickinson, R. N., who at the instance of the Federation has developed the plans for instruction. The idea is to give to school girls real courses in Mothercraft, so that they shall not enter into the duties of later life without such instruction, which takes on a phase affording real practice.

The public schools have taken hold of the idea with energy and no less than ten states, with Canada and England in addition have established courses in the schools in mothercraft work.

One of the illustrations shows the school children eagerly listening as the school nurse gives to them a practical lesson, using a live baby for the illustration. The baby with its Teddy bear at its feet seems to be having a fine time, and well it may, for



it is in good hands, while the expressions of the children are those of interest and rapt attention.

Miss Dickinson has amplified the original plan of Mothercraft work in a way that bids fair to make it a powerful factor in the Americanization of those who have made of the United States their adopted home. Here is the school nurse speaking before a group of mothers of half-a-dozen nationalities, who have gathered in the pleasant school yard for a lecture and demonstration on the care of their babies. American mothers are by no means barred from these gatherings and indeed in them they can learn a deal that is of practical benefit. The first of such a series of lessons emphasizes the health of the children in the home and gives the reasons why they should stand, sit and walk correctly. Other lessons take up the bath, the need of attention to the teeth, and then follow instructions in personal hygiene and the great influence for good of sunshine and fresh air.

In the third of the illustrations Dorothy, who has given liberally of her spare time that the work might be properly set forth in pictures, has taken up the mechanics of dressing the baby. She exemplifies the instructions she has received, and in her hands the contented little "kiddie" is without a care or sorrow in the world.

This in brief is the story of a movement in health education that is yet in its very beginnings, but for which the future looks bright in the extreme. It is an education founded on interest and philosophical in its principles, and it addresses itself to girls and to women in formative periods of their lives.



CONVENTIONS, CONFERENCES, MEETINGS

December 16–18, New Orleans, Southern Surgical Association.

December 30–31, Boston, Mass., Society of American Bacteriologists.

1920, January —, Albuquerque, N. M., New Mexico Public Health Association.

January 1, Boston, Mass., Society for Social Hygiene.

January 8, Various places. Annual meetings of three sections of Nebraska State Association of Nurses.

January 20 —, Engineering Institute of Canada.

February —, Austin, Texas, Texas Public Health Association.

February —, Canadian Red Cross Society.

February —, Boston, Mass., Tuberculosis League.

March —, Chicago, American Conference on Hospital Service.

March 22–23, New York City, New York State Medical Society.

April —, Charlotte, N. C., Red Cross Seal Commission of North Carolina.

April, last week or first week in May, New Orleans, American Medical Association.

April 12–17, Atlanta, Ga., National Organization for Public Health Nursing.

April 20–22, Charlotte, N. C., Medical Society of North Carolina.

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WHAT ARE THE DUTIES OF THE PUBLIC HEALTH OFFICER?

In the November issue of the JOURNAL was started discussion of one of the livest topics of the day, "What are the real duties of the Health Officer." In the issue referred to Dr. Hill suggests in his article entitled, "What is the matter with the Public Health Today?" that the health officer has police powers which he oftentimes ignores and neglects to take up, devoting time to work that might better be relegated to some voluntary organization. He phrases his position in part in these terms: "Protection from disease is, by all concerned, granted to be the essential *raison d'être* of health departments. It requires the compulsory powers they already have, but the negligence of health departments to occupy this, their own field, combined with their grasping after every other form of activity, has made them too often mere laughing stocks." Again, he suggests that, "The whole-time officer who does his own proper duty against disease will have his hands full, and will find that non-compulsory fields have waiting to occupy them staunch moral supporters with time and money plentiful, who will coöperate with him in his work all the better for working themselves on these voluntary measures."

In the current JOURNAL, Dr. McCombs picks up the gage thrown down by Dr. Hill with the claim that there is only one public health, that divided responsibility can result only in lowering the standards of health administration, and that such matters as public health administration should be left in the hands of the regularly constituted public health authorities. If these officials concern themselves only with their police powers they will be accomplishing but a portion of their real duties. To limit the health officer to police work, will be leaving but little in public health work to attract the kind of men fitted to be well-trained, whole-time executives.

These conceptions are by no means exaggerated. Almost from the beginning of public health administration there has been the question of what the functions of the health officer really are. In one office of importance in days gone by, the Commissioner believed and asserted that his functions were altogether advisory, and that he did not even wish the police powers that are considered so important in these days. This has been changed, and "teeth" in the state health laws are now much in demand. In the development of public health work, a development that has been marvellously rapid, there is little wonder that the demand for new activities has been greater than

health officers with their proverbial lack of appropriations, have been able to provide. It has seemed a natural process for private agencies to try the experiments rather than to have the public officers enter into what might readily be considered problematical work. This is the course that has been found practicable in other public functions. In education it has been quite customary for some public spirited private agency to undertake the experimental work, which, on proving a success, has later become a portion of the regular curriculum or school system. No small amount of splendid pioneer work has been done by private agencies.

But, if the simile of the school may be carried a little further, a question not dissimilar to that now confronting public health authorities might be asked—"What is the function of the Public Education Department?" In the argument of this question it might be urged that this office is primarily to see that the children all attend school, and that the question of when, where or the quality of the schools themselves, might be left to some private agencies to decide. This, of course, seems absurd from the point of view of today, but our position now is the result of long experience in public school administration.

The questions of what should be the functions of the health officer, and how he shall relate the work of his office with that of other health agencies, are among the most important of the day. With the idea of securing for this problem a discussion that shall be of value to health administrators, the JOURNAL has opened its pages to Dr. Hill and Dr. McCombs, and it is to be hoped that by letters and communications other health administrators will express their views on this subject. It is suggested that communications be limited to 500 to 1,000 words and that the views of the writer be presented rather than a detailed discussion of the articles already published.

A NEW CONVENIENCE FOR JOURNAL READERS.

Beginning with this issue of the JOURNAL our readers will find on page XI, Advertising Section, under the Table of Contents for the text, a classified index to the advertising pages. This will be a convenience for those who wish to order supplies, or who desire a list of dealers from whom to invite bids, or with whom to place orders.

This occasion offers an opportunity to express a related message of great importance to members of the Association and readers of the JOURNAL. The mounting cost of printing and publishing has during the past few months compelled many publications to increase their subscription rates. In the case of the AMERICAN JOURNAL OF PUBLIC HEALTH the rates for printing the JOURNAL during 1920 will be almost double those for 1919.

The executive staff of the JOURNAL is making every effort to avoid an increase in membership or subscription rates on this account, because salaries in the public health field have not kept pace with the increased cost of living.

The two remedies which first suggest themselves are, to cut down the size of the JOURNAL or to increase the subscription rate. The executive staff of the JOURNAL feels very strongly, however, that this is highly undesirable and must be avoided if possible. Fortunately there is in JOURNAL advertising a potential solution of the problem. Advertising rates have been increased and more space has been sold.

Advertising space is valuable to the advertiser in proportion to the extent to which the readers of the periodical examine the advertisements. The more you, the readers of the JOURNAL, examine and utilize the advertisements that appear in the JOURNAL, the more space the advertisers can take and the more they will afford to pay, and the greater the likelihood of the JOURNAL weathering the storm of high production costs without increasing the subscription rate.

In spite of the high cost of doing business, your JOURNAL is larger and better than it was a year ago. Help the JOURNAL staff to continue this improvement by examining the advertisements each month and making use of the Index of Advertisers whenever you have occasion to consider the matter of supplies.

PROCEEDINGS AND DISCUSSIONS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION AT NEW ORLEANS, LA., OCTOBER 27–30, 1919.

General Sessions, October 27, 7.45 P.M.

The meetings of the American Public Health Association, forty-seventh annual, were initiated by a gathering of the members in general sessions on Monday evening, October 27, William H. Robin, M. D., in the chair. In remarks prefatory to the invocation, his grace, Rev. John W. Shaw, Archbishop of the Catholic Diocese of New Orleans, took occasion to note that the Catholic Church throughout the ages has always been in the fore ranks of medicine. "Not a few of the distinguished schools of medicine in Europe," he said, "owe their existence to our deep interest and fostering care. As we read the distinguished annals of medicine and surgery in the different countries of the world, we find that many of the sons of the church have not only reflected great glory upon their noble profession by being among its foremost champions, but have honored the church of which they also are humble, docile sons."

Chairman Robin announced that the governor of Louisiana was obliged to be absent, but extended to the A. P. H. A. meeting his most cordial welcome. The chairman next presented Hon. Martin Behrman, mayor of New Orleans.

Mayor Behrman bid the members welcome and commented on the distribution of the delegates, representing every section of the United States together with Canada, Mexico, Cuba and Panama. He spoke of the efforts of New Orleans to make itself a community safe to live in and of the campaign against yellow fever in 1905 in which with the aid of the physicians of the United States Public Health Service the city fought then the fight in which the disease was driven away, never again to return in epidemic form. Then there came the great fight against the bubonic plague, in which with the cooperation of the great government agencies, New Orleans has combated the disease and has made the city plague proof. The speaker noted that more than a million rats were killed, and sketched briefly the advantages in economy as well in bettered health.

"But today," continued the city's chief executive, "we are welcoming you to a sanitary city—to a city that holds up its head proudly and says, 'We have made up our mind not only to sanitate, but to keep on sanitating.'" He spoke of the city as the second port in the country and one which must of necessity keep its doors open. Quarantines would seriously interfere with business, so that the city has made it unnecessary now for one of the old-fashioned quarantines to occur. Those who were interested in business realized that commerce would be hampered if trade were stopped for a month at a time.

Mayor Behrman referred to the medical profession in the city, comparable to any other group in the country, he spoke of the wonderful water supply, the splendid drainage system, the low cost of domestic water, and the problems of sewage in a city at sea level, and in conclusion referred to the lessons that both the city of New Orleans and the members of the convention meeting within its precincts might gain one from the other.

Chairman Robin then presented Dr. Lee K. Frankel, president of the Association, who was scheduled on the program for the presidential address. This has already been printed in the Journal, in the November issue, pages 811 to 818.

At the conclusion of his address President Frankel assumed the chair and presented Sir Arthur Newsholme, "A guest who has come to us from across the water. It is rarely we have had the opportunity of having brought to us an authoritative message from the countries on the other side of the Atlantic. It gave us extreme pleasure, therefore, when we learned that he was to be in the country, to invite the distinguished Englishman to be our guest, and to speak on some of the health problems which have confronted him in the exhaustive work he did for so many years as the health officer of the Local Government Board in England."

The address of Sir Arthur Newsholme entitled, "Historical Development of Public Health Work in England," is presented in the current issue of the Journal, pages 907 to 918. Following his address there was orchestral music.

Some items of business occupied the remainder of the evening, the appointment of a committee to nominate the five directors whose election is required by the Constitution, and the reading of communications to the Association. Dr. Frederick Montizambert sent heartiest greetings with his regrets at being unable to attend. A poem by Dr. Stephen Smith, "At Ninety Seven," was read and minor items announced.

General Sessions, October 28, 7.45 P.M.

Symposium on Influenza.

At the second of the general sessions on Tuesday evening, President Frankel without material preamble or interludes, presented one after another the

three principal speakers, Dr. Allen W. Freeman of Columbus, O., on "Administrative Measures Against Influenza"; Dr. W. H. Peters of Cincinnati, O., on "American Red Cross Health Crusade," and Dr. Donald B. Armstrong of Framingham, Mass., on "What Medical Examination of Influenza Patients Has Shown in Framingham, Massachusetts." Their papers find place in the current issue of the JOURNAL, that of Dr. Freeman on pages 919 to 923, that of Dr. Peters on pages 924 to 929 and that of Dr. Armstrong, presented in abstract form, on pages 960 to 964. Following the papers came the general discussion of them and of the influenza situation.

DR. HAMILTON P. JONES of New Orleans, La., was the first speaker in the discussion, stating that pathogenic germs are not normal to the mouth, naso-pharynx or respiratory tract. Although they are commonly found in secretions from these localities, their presence is looked upon with complacency in spite of the fact that the harborers of them are always either potential cases of this disease or carriers. "In my experience as chief of the Medical Service at Fort Bliss," said the speaker, "here in the recent influenza outbreak, all true cases of influenza were clinically cases of broncho-pneumonia, invariably demonstrable as such by physical examination of the chest and the use of the X-ray." The clinical, laboratory bacteriological and cultural examination of the nose, mouth, lung secretions, blood counts and cultures showed practically identical findings in all cases, so that a differential diagnosis could not be made except on the basis of the prognosis; that is, if the case was apt to get well, it might be called influenza; if not, pneumonia. Routine examinations of cultures taken from the naso-pharynx for pneumococci, hemolytic streptococci, *Streptococcus viridans* and later, that is in December, for a new streptococcus, which we called for lack of a better name, a methemoglobin—producing streptococcus, showed that certain individuals apparently had a higher percentage of carriers of these organisms than others; that there was a definite relation between the number of carriers in a given regiment and the number of cases of pneumonia entering the hospital, so that the higher the number of carriers the greater number of cases of pneumonia, and the greater the number of deaths, post mortem examinations of which showed one or more of the above organisms in the affected area.

Dr. Jones outlined a treatment of spraying the nose three times daily with a 2 per cent solution of dichloramine T in albolene, made fresh every day, and painting the tonsils with a 10 per cent watery solution of sulphate of copper three times a day, and giving the patient a small bottle of sulphate of copper to be used as a mouth wash and gargle. The speaker noted the increase in hospital admissions in broncho-pneumonia throughout December and January and in consequence of which in February a general order was passed for the bacteriological examination of all the men, some 14,000. After 4,000 men had been examined and 250 carriers picked up, it was concluded that the work would take too long, so that a general order was then issued for all men in the division to be given some form of nasal and oral treatment by their medical officers. The treatment was generally followed with the result that in February there were 82 cases of broncho-pneumonia admitted, in March 9 and in April none.

COL. FREDERICK GUEST of London, Ont., spoke next with reference to preventive means used by him in a hospital overseas in September and October, 1918. "With no orders issued as to the means we should take," said the speaker, "I with my own initiative issued my own orders to the hospital which I had the honor to command. It had 4,200 beds and with the personnel numbered more than 5,000 individuals. In other camps surrounding the district they were dying off at the rate of eight to ten a day. . . . My medical officers took charge of the patients and every patient in this convalescent hospital was looked over by his medical officer. . . . The throat and nasal cavity were examined and if any signs of infection were found, the patient was immediately attended to. . . ." To this care and to the good ventilation Col. Guest attributes the small incidence of the disease, only 100 cases of influenza and eight deaths. The speaker agreed with Dr. Freeman about the importance of close attention, isolation, fresh air and good nourishment.

DR. H. L. ROCKWOOD of Cleveland, O., called attention to the opportunity afforded by the meeting to press home the remarkable effect of proper ventilation, and made note of how even physicians neglect this very simple precaution. He had been at a meeting of an academy of medicine with 180 physicians, in a comparatively small room with little or no ventilation. Most public halls are not properly ventilated, and the same is true of private residences. He spoke especially of how in Cleveland through advertisements and special officers who attend meetings, the city is trying to preach the gospel of ventilation and the regulation of room temperature.

DR. LOUIS I. DUBLIN of New York City spoke with reference to relationships between influenza and tuberculosis as suggested by Dr. Peters. He related some of the experiences of his company—the Metropolitan Life Insurance Co. "We made an

examination of the population at large," he said, "in the first nine months of 1918 as compared with the first nine months of 1917. It covered a large number of communities, including the state and city of New York. We found the mortality from tuberculosis was slightly lower in the period in 1918 than in 1917, not a significant difference." Then the influenza epidemic began, and in the remaining three months of the year the mortality increased 16 per cent from tuberculosis against a decrease of 5 per cent in 1917. In the early spring of this year, and continuing with increasing improvement month by month, a startling decrease in the mortality from tuberculosis is shown as compared not only with 1918 but the corresponding months for five years back.

Dr. John B. Sewell of Baldwin, La., touched on the points of nervous condition during the disease, and the long period of convalescence. Dr. Milton J. Rosenau spoke of the need of further study of the disease and noted that the Metropolitan Life Insurance Co. has provided means for investigations into the mode of treatment of the disease and its complications. A commission has been appointed consisting of Drs. McCoy, Frankel, A. S. Knight and Dr. Rosenau, to which group there have been added, Professor E. L. Jordan and Dr. W. H. Cross. Work is under way in different places. Dr. Charles J. Hastings discussed a number of points. He questioned the safety of douching the throat and nose, since the solution that is strong enough to be efficacious may create an irritation. He questioned on Dr. Armstrong's suggestion about whether the husky or the frail person is the safer, and suggested, that bed being the strategic place in which the human being can combat the germs, the frail person would be the first to seek that place, while the strong man lets the germs get into the ascendency before he yields.

The line of the argument of Dr. S. A. Shoemaker of Bufftown, Ind., was to caution health officers to look after the subsistence of his community, and make his people if he can, eat moderately and of plain foods and take plenty of rest and live a quiet life.

Dr. John Dill Robertson of Chicago found the figures of the patients in Chicago to agree with those of Dr. Armstrong. He advocated the present time as valuable for health education of the public, and stated that in Chicago special courses for the education of nurses have been given and 800 women took advantage of the first series with 1,500 women at work now in the courses in a second school.

In the summing-up by the earliest speakers, Dr. Freeman pleaded an "alibi" in the matter of douching of nasal passages, Dr. Peters said that he hoped he had not given the impression that the tuberculosis cases were after-effects of influenza, for these are always with the health officer.

In the business session of the evening, the committee to nominate five new directors whose terms are to expire in 1922, presented through its chairman, Dr. W. A. Evans of Chicago, the names of Dr. Haven Emerson, New York City; Dr. John A. Kappelman, Canton, O.; Dr. Henry F. Vaughan, Detroit, Mich.; Dr. John Dill Robertson, Chicago, Ill.; Dr. M. P. Ravenel, Columbia, Mo.

Dr. Eugene R. Kelley of Boston, Mass., was nominated for director in the group whose terms expire in 1920, in place of Dr. J. N. Hurty who is a director *ex-officio*, being a former President of the Association. These officers were declared elected.

For the concluding item in the business of the evening the secretary exhibited a chart showing the growth of the Association in membership during the past nine years. This chart, a copy of which appeared in the *News Letter* for November, shows that the present number of members is 3,500.

General Sessions, October 29, 2.00 P.M.

The third meeting of the general sessions was called to order on Wednesday afternoon by President Frankel. The general subject of the papers and discussions was the "Coördination of Federal Health Activities." Dr. W. H. Rankin of Raleigh, N. C., was the first of the speakers and discussion followed at once. The paper itself, entitled "A Supreme National Need: Coördination and Enlargement of Federal Health Activities," may be found in the November number of the Journal, pages 819 to 822, while the discussions proved to be of such value that they are presented in liberal abstracts in the order in which they came, on pages 973 to 984 of this issue. The speakers were Dr. S. J. Crumbine of Topeka, Kan.; Dr. B. S. Warren of Washington, D. C.; Dr. W. S. Small of Washington, D. C.; Dr. Anna E. Rude of Washington, D. C., and Dr. Frederick R. Green of Chicago, Ill.

Following the discussion Dr. L. L. Lumsden was called upon by the chairman for his paper on "Public Health Perspective," which may be found on pages 930 to 936 of this issue of the Journal. There were brief discussions of Dr. Lumsden's paper by Dr. R. L. DeSaussure of Rome, Ga., and Dr. M. P. Ravenel of Columbia, Mo., the latter of whom presented this motion:

Moved, That the Board of Directors of this Association be requested to appoint a committee of five to initiate and outline a campaign based on the suggestion made in Dr. Lumsden's paper to save 250,000 lives in 1920. The motion was seconded by Dr. Charles J. Hastings of Toronto, Ont., and was carried.

Dr. W. A. Evans presented the final report of the Committee on Influenza (page 987 of this issue) which was adopted. Dr. Evans also presented the report of the Committee on State Health Associations, which was received and placed on file and the committee continued. The final business of the meeting was the report of the Committee on Resolutions, presented by Dr. Peter H. Bryce of Ottawa, Ont. The Resolutions as adopted find place below.

The fourth gathering of Association members in General Sessions, on Wednesday evening, October 29, 1919, was devoted to a symposium on malaria. The discussion that accompanied the papers will be given in a future issue of the JOURNAL in connection with the papers themselves. Some items of business, the acceptance of reports and the installation of incoming officers, concluded the exercises of this portion of the meetings.

RESOLUTIONS ADOPTED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION, NEW ORLEANS, LA., OCTOBER 27–30, 1919.

RESOLUTION I.

Malaria.

WHEREAS, The American Public Health Association recognizes the importance of lessening the ravages of malaria in the countries represented in the Association, and welcomes every effort for the application of scientific methods for lessening such ravages, therefore be it

Resolved, That the American Public Health Association desires to assure the American Anti-Malarial Association, the annual meeting of which is to be held in Florence, Alabama, in May, 1920, of its sympathy with the objects of such Association, and of the support of its efforts along such lines as may be found possible within the limits of the powers and facilities of the American Public Health Association

RESOLUTION II.

Physical Training.

WHEREAS, The physical examination of school children and drafted men in the armies of the countries represented in the American Public Health Association has revealed a large amount of remediable defects, and that, therefore, legislation is necessary, whereby provision may be made for the correction of such defects by physical training and, whereas, it is further desirable that the youth of these countries be educated in the duties of citizenship, be it

Resolved, That steps should be taken to provide means to these ends under the direction of properly qualified persons, and that arrangements, therefore, be made through coöperation by the several federal, state and municipal governments.

RESOLUTION III.

Laboratory Use of Dogs.

WHEREAS, There is now before the Congress of the United States a bill to prohibit the use of dogs for scientific purposes, and it is the opinion of the American Public Health Association that the passage of such a measure would seriously hamper medical and surgical progress, therefore be it

Resolved, That this Association strongly deprecates the passage of such legislation and that the Association forward a copy of this resolution to the chairman of the Judiciary Committee of the United States Senate, and that the President of the Association be instructed to appoint a committee of three to confer with such committees of Congress as may have this bill under consideration and to urge the views of the Association on said committees.

RESOLUTION IV.

Health Insurance.

WHEREAS, In the presidential address of Dr. Lee K. Frankel, President of the American Public Health Association, and in the paper presented by Sir Arthur Newsholme, lately the chief medical officer of the Local Government Board of England and Wales, the question of health insurance was dealt with and the need illustrated for some system whereby the health of the people of all the countries represented by the American Public Health Association may receive the greatest degree of care which science makes possible; and

WHEREAS, It has been shown in various countries that this can only be done by governments assisting through legislation the medical and social agencies at present existing; be it

Resolved, That the American Public Health Association representing, as it does already through its members, a large part of the official work already carried on through Federal, state, and municipal authorities, does hereby urge the appointment of committees in the several countries represented in the Association by their federal governments, to study existing methods for the preservation and improvement of the health of the people of these several countries, such as hospital facilities, public health activities, charitable institutions and compulsory health insurance, with a view to reporting some adequate plan for coördinating already existing activities and for extending the application of scientific and social agencies for accomplishing the desired ends.

Resolution V.

Public Health Service Salaries.

Whereas, The present and future efficiency of public health work is dependent upon the efficiency of the personnel engaged therein, and

Whereas, The rates of pay of the officers of the United States Public Health Service are based upon a scale fixed in 1908, while the cost of living has advanced 75 per cent since 1913, according to government reports; and

Whereas, Numerous resignations are taking place in the Public Health Service, and it is impossible to obtain and retain a qualified personnel at present rates of compensation; and

Whereas, These conditions are a serious menace to the conduct of Federal public health work, be it

Resolved, That the American Public Health Association does hereby urge Congress to enact such legislation at an early date as will increase materially the pay of officers of the United States Public Health Service, substantially as contemplated by a bill (H. R. 9204) now pending before Congress designed "To increase the pay of commissioned officers and enlisted men of the Army, Navy, Marine Corps, Coast Guard and Public Health Service"; be it

Resolved Further, That copies of this resolution be sent to the respective chairmen of the committees in Congress on Military Affairs, Naval Affairs in the House and Senate and on Interstate and Foreign Commerce in the House, and Public Health and Quarantine in the Senate.

Resolution VI.

National Medical Examination Week.

Whereas, The people of the several countries represented in the American Public Health Association have not as yet been effectively aroused to the necessity for periodical physical examination; be it

Resolved, That the American Public Health Association urges that a national medical examination week be appointed during the month of May, 1920; and that this Association unite in an educational movement with all national health, social and medical agencies of these several countries for the furtherance of this end.

Resolution VII.

Leprosy Act.

Resolved, That the American Public Health Association tenders to the United States Public Health Service its most hearty support and coöperation in carrying out the provisions of the act of Congress approved February 3, 1917, entitled:

"An Act to provide for the care and treatment of persons afflicted with leprosy and to prevent the spread of leprosy in the United States."

Resolved Further, That we urge that the provisions of the said act be carried into effect at the earliest practicable date.

Resolution VIII.

Control of Plague.

Whereas, The American Public Health Association recognizes the importance of thorough eradicative measures for the control of plague in the seaports and districts where infection is likely to be introduced and spread by rats and ground squirrels, be it

Resolved, That adequate means be voted by the proper governments, whether state or Federal, for destroying the carriers of this disease, and that this resolution be brought before the United States Public Health Service, and before the health departments of several sea-board states, where danger may exist through the importation of plague from foreign countries.

Resolution IX.

Coördination of Federal Health Activities.

Whereas, It is believed that the promotion, maintenance and protection of health in its citizens is one of the fundamental functions of civil government; and

Whereas, lack of coördination in any national program of administration and of orderly balanced expansion of the functions of the Federal health services in the United States has resulted from the present distribution of such functions among various departments of the government be it

Resolved, That the American Public Health Association thereby does urge that measures be taken to assure for the future a national health program and a coördinated Federal health administration; and that to accomplish these ends a standing committee of members of the American Public Health Association be appointed by the President of the Association to study the needs of the national health situation, to confer with other health and social agencies, and do whatever lies within its power to secure the appointment of a special congressional commission on the coördination of the Federal health activities along the general lines of the so-called France Bill.

Resolution X.

Venereal Disease.

Whereas, The American Public Health Association recognizes the work of the U. S. Army and Navy in combating venereal diseases during the period of the war, and the important influence of this work upon the progress of control of these diseases in civil life; be it

Resolved, That the Association strongly endorses the program for the protection of our armed forces in future years as outlined in the report of the Committee on Venereal Diseases of the Section of Public Health Administration and pledges its support of civilian coöperative measures for making these programs effective; also that the Association heartily endorses the program of the United States Inter-Departmental Social Hygiene Board and of the United States Public Health Service for combating venereal diseases, and hereby offers the active coöperation of its officers, members and the Committee on Venereal Diseases in promoting this program and urges the coördination of Federal and state activities everywhere in the United States to this end.

RESOLUTION XI.

Courtesies Extended the A. P. H. A. at New Orleans.

WHEREAS, The President and members of the American Public Health Association in session at New Orleans desire to place on record their high sense of the courtesies that have been extended to them by the Governor and Executive of the state of Louisiana, also the State Department of Health and of its officers; by the Mayor, City Council, Medical Officers and officials of the city of New Orleans, by the medical profession of the state and city for their many attentions; by the entertainment committee and ladies of New Orleans for their many kindnesses; by the Red Cross, the Elks Club, and the Chess, Checker and Whist Club; and by the press for their splendid reports of meetings; be it

Resolved, That the American Public Health Association does hereby convey to these various persons, authorities and organizations its sincere thanks for the constant kindnesses and courtesies afforded to the Association as a body, and to its officials, members and their friends, individually.

Resolutions adopted by the Sections will appear in later issues of the JOURNAL.

DISCUSSION OF DR. RANKIN'S PAPER IN GENERAL SESSIONS, WEDNESDAY, OCTOBER 29, AT 2.00 P.M.

Among those who discussed Dr. Rankin's paper on "The Coördination and Enlargement of Federal Health Activities," S. J. CRUMBINE, M. D., Topeka, Kan., was the first speaker, who complimented Dr. Rankin on his presentation of the subject. He said that the events of the past few years have emphasized the situation which he set forth.

"Now that we are for the first time able to evaluate the results of the draft, certainly it should arouse our insistent effort that this unfortunate situation be no longer continued. I think one of the most notable addresses of the war, made by Britain's great premier, voices in a sentence the situation which not only confronts Great Britain but every civilized nation of the earth, including the United States, and should make us act with the same prompt decision with which Great Britain has acted. Lloyd George declared that the secret of the strength of the nation and the secret of National recuperation is conditioned upon the health of the people. I am sure every public health man in these latter days feels the increasing responsibility that rests upon health officers and boards of health, both Federal, state and local.

"It was with this feeling that at the annual conference at Atlantic City, much of the time and attention were given this subject as to what state officers might do to assist in bringing about a better condition of Federal health activities. The conference appointed a working Executive Committee and charged it with the responsible task of joining itself with other agencies, to the end that working with other agencies, it might bring about some sort of a formulated plan to meet the situation.

"As chairman of the Executive Committee and speaking for that organization, we wish to join ourself with like agencies, particularly this great organization, and, working together, bring about this thing that is so greatly needed. There is no one thing we have in mind that we insist upon. The only plan we have is grounded upon the belief that there must be a diagnosis before treatment is applied. So we welcome such agencies as may unite with us or we with them in making a study of the situation. After we have decided and mutually agreed upon a certain plan then we may throw our force and energy into it.

"I might, I think, with perfect propriety say in anticipation of any charges against the state health officers that they may have some selfish motives, that before our committee took any action we entered into a solemn covenant that whatever plan was adopted, under no condition would any member of the Executive Committee be a candidate or accept an appointment under such legislation as might finally be adopted. We come with unselfish devotion to this task with the hope that the unfortunate situation may be speedily relieved."

In taking up his part of the discussion of Dr. Rankin's paper, DR. FREDERICK S. GREEN of Chicago presented first a synopsis of the efforts that have been made during the past fifty years towards a Federal Health Service. This, however, was not read but was filed as a document important to the calm consideration of the general subject. It is here presented:

"Efforts for constructive Federal public health legislation, which have now been going on for nearly

half a century, are divided into three periods of more or less continued effort, with a considerable interval between each. During the last forty-eight years many measures have at different times been before Congress. The first mention of this question in the American Medical Association was in 1871, when Dr. George Houston, secretary of the California State Medical Society, introduced a resolution calling attention to the recent establishment of state boards of health in Massachusetts and California, the only states which up to that time had created such bodies, and recommending that the Association take steps, as soon as six states should establish state departments of health, to bring about the formation of a national health council made up of representatives from the various state boards. In 1872, Dr. T. M. Logan of California, chairman of the Committee on a National Health Council, reported that four states—Massachusetts, California, Minnesota and Virginia—had established boards of health. At the same meeting a Dr. J. C. Tucker of California introduced a resolution asking Congress to establish a national sanitary bureau and presented a bill drafted for this purpose, no copy of which appears in the record. Dr. John S. Billings says that a bill for a national health organization was prepared by Dr. C. C. Cox in 1871 and was introduced into the Senate in 1872. This bill provided for a National Sanitary Bureau under the Department of the Interior. While it was pending before Congress, the yellow fever epidemic of 1873 demonstrated the necessity for an effective national quarantine service and resulted in a number of conferences and hearings before Congress. Another yellow fever epidemic in 1878 again brought this question into prominence and resulted in the formation of a commission, financed by Mrs. Elizabeth Thompson, to investigate the cause of the epidemic. At the same time Congress appointed special committees on epidemic diseases, also a special Congressional Commission to investigate the causes of yellow fever. In the Senate, Senator L. Q. C. Lamar of Mississippi introduced a bill creating a Department of Public Health. Before this bill was acted on the special Congressional Commission on Yellow Fever presented its report, recommending a national quarantine system and a central health authority at Washington. Senator Harris of Tennessee introduced a bill creating a Bureau of Public Health, the head of which should be the Director-General of Health with a board of health consisting of seven members appointed by the President and the Surgeons-General of the Army and Navy. This bill passed the Senate but was defeated in the House. In the meantime, Mr. McGowan of Michigan introduced a bill, late in the session, establishing a National Board of Health. This bill passed both houses in the last hours of the Forty-Fifth Congress and became a law March 3, 1879. It created a National Board of Health consisting of seven members appointed by the President, one medical officer each, from the Army, the Navy and the Marine Hospital Service, and one officer from the Department of Justice. Its duties were to obtain information and advise governmental departments on public health questions. It was also directed to report to Congress a plan for a national health organization. This board, the only national health body this country has so far possessed, was organized on April 2, 1879, and remained in existence until 1885. No appropriations, however, were made after 1883, so that the board really had only four years of active existence. There has been much speculation as to why this promising attempt at the organization of a national department of health failed so completely. Study of the proceedings of the board, as well as of the evidence presented before the Congressional Committee, shows three essential causes for the failure. These are:

"(1) there was apparently no one on the board who had any constructive or administrative ability or any conception of the organization of a Federal Department of Health as a part of the executive branch of the government. The only attempt that was made to comply with the instructions of Congress to report a plan for organization, appears in the first report submitted by the board in the form of a resolution adopted by the American Public Health Association, and a letter written by the Board of Directors of the American Association for the Advancement of Science, both of which recommend that there should be no change in the plan of organization of the National Board of Health. As this body was intended only as a temporary organization, it is highly probable that this opinion was inspired by members of the board for the purpose of preventing any change in their status.

"(2) The reports and proceedings of the board show a failure to appreciate the difference between the individual relations existing between a physician and his patient, and the public relations existing between the medical profession and the state. The board appropriated money and undertook to carry on investigations on all sorts of trifling and irrelevant subjects. For instance, one of the problems dealt with at length in one of the annual reports is "The Chemistry and Morphology of Spring Water." There are also long clinical reports on cases of diphtheria, typhoid, etc. This is not strange when one recalls that in 1880 and 1881 preventive medicine, as we now understand it, practically did not exist, but it shows a lack of ability on the part of the board to grasp the possibilities of their opportunity.

"(3) The board early became involved in a contro-

versy with Dr. John B. Hamilton, at that time surgeon-general of the Marine Hospital Service, about the question of jurisdiction over quarantine and quarantine stations. Evidently this controversy was carried on with a personal bitterness characteristic of the times. Dr. Hamilton was located in Washington and undoubtedly had powerful political influences back of him. This probably explains the failure of Congress to make appropriations for the board after 1883 and for its consequent demise in 1885 through failure of Congress to make appropriations for its maintenance.

"In 1886, Dr. Robert T. Davis of Massachusetts introduced a bill providing for a Bureau of Public Health in the Department of the Interior, under a Commissioner of Health authorized to organize a permanent national board of health, and to relieve the Marine Hospital Service from further duties in this direction. No action was taken on this bill. At the St. Louis meeting of the American Medical Association in 1886, Dr. John H. Rauch of Illinois, chairman of the Section on State Medicine, in his address stated that three different bills had been introduced during the pending session of Congress for the creation of a national health service, but that there was little hope of any of them receiving favorable consideration.

"Again interest lapsed until 1891, when Dr. W. L. Schenck of Topeka, in his address as chairman of the Section on State Medicine of the American Medical Association, urged the creation of a department of public health to be formed by the coalition of the Marine Hospital Service, the Bureau of Education, the Divisions of Vital Statistics, Animal Diseases and the Weather Bureau into a single department. He stated that a bill for this purpose had been introduced into Congress during the preceding year. This is the first suggestion of the organization of a national department of health by the assembling of existing bureaus and divisions. In 1892 a petition was presented in Congress by John Sherman and Mr. John A. Caldwell, in the House, accompanied by a bill providing for a national department of health in the Treasury Department, to consist of three scientific men appointed by the President, one representative each from the Army, Navy and Marine Hospital Service and one member from the Department of Justice. This bill received no consideration, the principal objection being the expense involved. At the same time, Mr. Caldwell introduced a bill in the House providing for a National Department of Health and a Medical Secretary.

"In 1896, Dr. Jerome Cockran of Alabama, chairman of the American Medical Association, Standing Committee on a National Department of Health, urged the Association to adopt the policy of the gradual development of the Marine Hospital Service into a National Health Department. In 1897, Dr. U. O. B. Wingate of Milwaukee, chairman of the committee, in place of Dr. Cockran who had died during the preceding year, submitted a lengthy bill providing for a National Department of Health under a Commissioner who should be a regularly educated physician holding membership in one or more reputable sanitary or medical associations in the United States. This bill was very long, and contained detailed provisions regarding quarantine but little in the way of specific plans for organizations. The yellow fever epidemic of 1897 stimulated interest in the bill. It was introduced into the Senate by Senator Spooner of Wisconsin and into the House by Mr. Otjen. The campaign in favor of this bill was interrupted by the Spanish-American War and the discussion was dropped.

"Nothing further was heard on this subject for twelve years. In 1910 Senator Robert L. Owen of Oklahoma introduced into the United States Senate, Senate Bill 6049. This bill, the original Owen Bill, provided for a Department of Health under a Secretary of Public Health, in which should be assembled the Public Health and Marine Hospital Service, the Revenue Cutter Service, the Medical Staffs of the Pension Office, the Indian Bureau and the Department of the Interior, Old Soldiers' Homes, Government Hospitals for the Insane, Freedman's Hospital, Bureaus of Entomology, Chemistry, Animal Industry of the Department of Agriculture, the Hospitals of the Immigration Bureaus of the Department of Commerce and Labor, the Emergency Service of the Government Printing Office and all other agencies in the United States government for the protection of human or animal life, except the Medical Department of the Army and the Bureau of Medicine and Surgery of the Navy. A number of hearings on this bill were held during the following year but it was never reported out of committee.

"The second Owen Bill, Senate Bill 1, was introduced by Senator Owen April 6, 1911. It provided for a Department of Health with a Director of Health and a Commissioner of Health to be appointed by the President, the director to be an executive officer and the commissioner a skilled sanitarian. A number of bureaus and divisions were to be transferred to the new department and the President was authorized to transfer at any time any other that he might see fit. This bill was referred to the Senate Committee on Public Health and National Quarantine where it remained for nearly a year, at the end of which time it was reported out favorably but with amendments which practically made it a new bill. It now provided for an independent establishment to be known as

the United States Public Health Service, with a Director at the head and three Assistant Commissioners who were to be the present heads of the Public Health Service, the Bureau of Chemistry and the Division of Vital Statistics. Provisos were inserted to meet the objections that had been raised against the original bill on the part of various agitators. This bill was voted on February 3, 1913, the vote being a tie, 33 to 33.

"On April 7, 1913, Senator Owen introduced another bill providing for a Department of Health with a Secretary and Commissioner of Health as an assistant. The Public Health Service from the Treasury Department, a part of the Bureau of Chemistry from the Department of Agriculture, and the Division of Vital Statistics from the Department of Commerce and Labor, were to be transferred together with any other bureaus or divisions that the President might authorize. This bill was also referred to the Senate Committee on Public Health and no further action taken.

"Practically the same bill was again introduced by Senator Owen in 1916. Owing to the war, and the diversion of public and professional interest, no special attention was given to this subject until last summer, when, as you know, three bills were introduced into Congress, two in the Senate, one by Senator Owen and the other by Senator France, and one in the House by Mr. McDuffie of Alabama. As these bills are, doubtless, fresh in your minds, I will not discuss them in detail.

"Such is the history of the efforts for the creation of a department of health. What lessons can be drawn from the experience of half a century? The first and most obvious one is that the only time that a bill creating a national health organization was adopted by Congress was in 1879, following the report of the special Congressional Commission appointed to investigate the great yellow fever epidemic of 1878. This fact is significant. The only time that the members of Congress were convinced of the necessity for action, was after the creation of a special commission of members of Congress who investigated the subject and reported, not from the standpoint of physicians or public health officials, but from the standpoint of practical legislators.

"The second significant fact is that at some time during the past fifty years practically every one of the plans now proposed has at some time been discussed and formulated in legislation. The creation of a department of health *de novo;* the formation of a department by the transfer and the assembly of existing bureaus and divisions; the creation of an independent commission under a commissioner appointed by the President; the creation of a bureau of health under either the Treasury Department or the Department of the Interior; the creation of a joint department of health and education, and the gradual development of what was formerly known as the United States Marine Hospital Service, and what is now known as the United States Public Health Service, into a National Department of Health—all of these alternatives have been proposed and discussed at great length. Probably no more pertinent criticism could be made on our efforts than the mere statement of the fact that after fifty years of discussion, each of these various propositions still has its advocates and supporters and that there is today no reliable data or collection of evidence on which to base the opinion that any one of these plans is better than any other. In other words, the present argument for a national department of health or for any particular form of it, rests entirely on personal convictions, prejudices and opinions, rather than on any collected and carefully studied mass of evidence. The subject has, in a word, been treated as a question for partisan discussion rather than for scientific investigation and critical study.

"The third general conclusion, a corollary of the second, is that in all of the efforts which have been made for better legislation on this subject, the medical profession and those interested in public health legislation have been divided into two or more rival camps, and bitter controversies have been carried on regarding the relative merits of the measures proposed. This can easily be read between the lines in the Proceedings of the American Medical Association, the American Public Health Association and other bodies interested, while the recent discussions on this subject are within the memory of most of those here present. This is the result of the unscientific and partisan manner in which this question has been considered, particularly noticeable in the discussion on the Owen bills from 1910 to 1913. Senator Owen himself, as I know, took the broadest view of the problem, and was at all times most willing and anxious to modify his bills so as to include the best methods which could be worked out by the leading public health men of the nation. The five bills which he introduced differed widely in their provisions. Yet from the attitude of some of the disputants many persons were led to believe that the "Owen Bill" was a definite and constant plan, that it was something sacred, holy and above criticism, and that any efforts to suggest improvements, or even to modify its verbiage, constituted disloyalty to the medical profession. Yet this problem calls for the coolest judgment and most unbiased criticism. The creation of an effective national health organization involves three distinct questions: viz., a public health question, a legal question and an administrative question. To devise a governmental

public health machinery which will functionate effectively will require the united efforts of the best brains in the public health field, the legal profession, and the administrative forces of the country. To force this question into the field of partisan politics is simply to invite defeat and disaster.

"The fourth general conclusion is, that probably our greatest single mistake as a profession is attempting to secure constructive legislation through our own efforts rather than through the awakening and creation of public interest, the education of the legislators and the public, the correlating and coördinating of all the professional, health and philanthropic organizations interested, and the steady building up, through argument, reasoning and demonstration, of favorable public sentiment."

In his verbal remarks Dr. Green called the attention of the company assembled to some of the general principles involved in the general question of a Federal health department. "The history of this movement," he stated, "shows that there have been prepared and introduced into Congress, since 1870, twenty-five or thirty different bills aimed at the extension and reorganization of public health activities. Many methods have been proposed: The extension of the United States Public Health Service, the creation of a Department of Health, the creation of an independent Commissioner of Health, the creation of an independent Board of Health, the creation of a Bureau under some of the existing departments—all these plans have been suggested and advocated at some time. In every case the plan advanced has been the idea either of an individual or of a comparatively small group. Since 1879 when, following the yellow fever epidemics of 1872 and 1878, a Congressional Commission was created to report on the entire subject, there has been no attempt to survey this entire field of Federal public health work, to study it from every possible angle and to devise a plan that would be constructive and that would take into account all the factors implied in this problem.

"To review the history of the last forty-eight years would require too much time at present. The fact remains that after forty-eight years of discussion of this question, the three fundamental questions lying at the bottom of any constructive efforts for the reorganization of public health activities have not yet been settled. These are:

"(1) What can the Federal government do under its constitutional powers for the public health? Where can the line be drawn between Federal and state authority in this field?

"(2) What is the Federal Department doing today for the protection and conservation of public health? The public health work now being done is scattered through half a dozen different departments. There is no one place where a synopsis of the entire activities of the government can be found.

"(3) What should the Federal government do for public health and what form should its reorganized activities take?

"Until these three questions are settled, or until we have more light on them than at present, to attempt to construct any kind of national public health machinery would be as futile as to try to construct a machine before you knew what work that machine had to do. Heretofore, efforts for constructive legislation in this direction have been limited to individuals or groups of individuals. As a result, there have been widely different opinions. No clear conception has ever been formulated as to the form which constructive Federal health activity should take. No better proof of this could be found than the discussion that has taken place during the last hour on this platform. With no question as to the honesty and sincerity and good intentions of the three representatives of three different departments of the executive government who have appeared on this platform this afternoon to present their views of the case, it is evident from their discussion that the fundamental principles of health organization have not been settled, and that there is overlapping, duplication and confusion in the Federal government at present.

"Now, when the representatives of three of the great executive departments of our Federal government differ as widely as they do in their conception of what constitutes the function of their particular division of the Federal government, the principles on which that legislation should be based, and the object of the Federal machinery for the conservation of public health, how is it possible to evolve any scheme on which any kind of a constructive plan can be based until we have settled those fundamental principles? How are they going to be settled? By *ex parti* statements and arguments as in the past? Is there any prospect that we will get ahead any faster in the next fifty years than we have in the last half century? Isn't it clear that the only way to make any progress will be by the creation of a governmental commission, which can employ experts and collect a mass of data from which can be worked out the principles on which a well organized public health structure can be reared? Any other method would be equivalent to attempting to make a diagnosis and prescribe for a patient before securing all possible information regarding the patient's condition.

"Without attempting to discuss the details of the proposed Federal health legislation as set forth by Dr. Warren, or of the subject as seen by the representative of the Department of Education, or by

Dr. Rude in her presentation of the subject as seen from the standpoint of the Children's Bureau, the supreme need in the public health situation today is to create an official government commission before which all of these plans can be presented, which can collect all the evidence available and secure all the expert knowledge possible, and which can compile a report that will contain the essential facts on this question and that will make recommendations for real constructive effort.

"Such a commission is created in the Concurrent Resolution introduced by Senator France in the Senate and by Mr. Denison in the House, providing for a congressional commission with power to summon the heads of all departments to appear before it, to collect all facts regarding the laws under which each bureau is operating, the number of employees and what they are doing, the amount of existing appropriations and what is being accomplished. It is instructed to make a report to Congress with recommendations as to what constructive action should be taken.

"This, to my mind, is the first really constructive proposition that has been made in the Federal public health field. It is the only scientific solution of the situation. If scientific methods mean anything, they mean the collection of all the available knowledge on the subject before forming an opinion.

"It is the only economical solution to the question. This commission might have to study the situation possibly a year, but at the end of that time we would have some kind of basis for our opinion. Certainly we cannot make progress any slower than we have done.

"It is the only practical solution of the problem. There are before Congress seven different bills providing for some kind of reorganization of public health activities calling for appropriations of from two and one-half to one hundred million dollars. They call for a total appropriation of between two hundred and fifteen and two hundred and twenty million dollars. As Dr. Rankin has told you, the Federal government faces a total deficit of three billion dollars on the first of next July. The Republican party is in the majority and the Democratic party controls the administration. Is it conceivable that under these circumstances Congress is going to adopt any law creating a new executive department and appropriating millions of dollars for it? On the contrary, the Republican majority will do everything in its power to decrease the amount of the appropriations between now and the next presidential election. There is not the slightest prospect of any of these bills being passed during the next eighteen months.

"Unless we take advantage of this interval to collect some material which will serve as a guide for the future, we will face the same situation next year that we do now. Before the next Congress, there may be fourteen bills instead of seven bills and we are going to be just as much in the dark then in regard to the fundamental principles on which constructive health legislation should be based as we are now.

"The only rational constructive program at the present time, is to take advantage of this interval of eighteen months to do what we should have done long ago, to get behind that Resolution and to do everything we can to secure its passage, to aid the commission to collect all of the available information in regard to Federal health activities and to give us for the first time a sound, scientific basis for constructive effort in this field."

In continuing the discussion of Dr. Rankin's paper B. S. Warren, assistant surgeon-general, United States Public Health Service, presented the following review of development of national public health activities in this country:

"In the discussion of the 'Coördination and Expansion of Federal Health Activities,' I believe a brief historical outline of the development of Federal health activities will furnish the best point of departure. Until 1879 the Marine Hospital Service exercised practically all of the Federal health functions. In that year an act was passed creating a National Board of Health to continue in force for four years. This board ceased to function in 1882, because Congress failed to appropriate money for its maintenance. The act creating the National Board of Health was repealed in 1893. When the National Board of Health ceased to function in 1882, the Marine Hospital Service under authority of the act of 1878 assumed Federal health functions. The epidemic fund was first authorized in 1882. Other laws were passed expanding the health functions of the Marine Hospital Service. The most important of these were the act of 1890 to prevent the introduction of contagious diseases from one state to another, and the act of 1893 granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service.

"This was the state of development when I was assigned to duty in the Bureau of the Marine Hospital Service during the period of 1900–1903. In 1901 I had the honor of assisting former Surgeon-General Wyman in the preparation of a bill changing the name of the Marine Hospital Service to the United States Health Service. After many months of anxious work we had the great pleasure of seeing this bill enacted into law but owing to internal service consideration the name was changed to United States Public Health and Marine Hospital Service. Congress continued to expand the public health function of the service. In 1912 under Surgeon-

General Blue's direction, I had the honor of again being of some assistance in obtaining the passage of the act which changed the name of the service to the United States Public Health Service and provided broad investigative authority for the service.

"From the above outline of the development of the Public Health Service it is clear that Congress intended to make of it the principal Federal health agency. Congress, however, has authorized other departments and bureaus to perform certain health functions. The principal ones among these are the Bureau of Chemistry, Department of Agriculture; the Children's Bureau and Bureau of Labor Statistics, Department of Labor; Bureau of the Census, Division of Vital Statistics, Department of Commerce; the Bureau of Mines and Bureau of Education, Department of Interior; and the Interdepartmental Social Hygiene Board.

"There has been considerable criticism of the scattering of health agencies in so many of the executive departments, even by Congress itself. In fact, the Congress has directed a report to be made of the health activities performed by all departments.

Coördination of Federal Health Activities.

"A review of the laws relating to Federal health activities will show that the Public Health Service has all of the authority to investigate the disease of man and to control infectious and contagious diseases which, under the Constitution, can be conferred by Congress upon any Federal agency whatsoever. The only limitations are constitutional, the appropriations, and the supply of men and women trained in preventive medicine.

"Up to the present Congress has appropriated to the Public Health Service for the fiscal year ending June 30, 1920, $8,338,470, of which about $3,000,000 is for public health work. In addition it has imposed upon the service the duty of providing medical care for the discharged soldiers and sailors and authorized the acquisition of a number of additional hospitals. This will furnish wonderful opportunities for developing better methods of treatment and prevention of disease, especially tuberculous and neuro-psychiatric diseases.

"The review of the laws relating to Federal health activities will further show, as stated above, that several bureaus and divisions in several executive departments have been authorized by Congress to perform limited health functions in certain specific fields, for example: The Bureau of Chemistry, in so far as the pure food and drug act relates to public health; the Children's Bureau, in so far as child welfare relates to health; the Bureau of Labor Statistics, certain health functions in the matter of industrial diseases; the Bureau of Mines, in matters of health hazards in the mining industry; the Division of Vital Statistics, Census Bureau, in the matters relating to vital statistics; and the Interdepartmental Social Hygiene Board in matters relating to the control of venereal diseases. All of these functions are also authorized for the Public Health Service with overlapping in functions of those bureaus and divisions. There is also overlapping in the special fields of other bureaus, for example: The health of the child is often intimately related to industrial hygiene and to health hazards of the mining industry; the Division of Vital Statistics overlaps all bureaus in so far as it is authorized to collect vital statistics which relates to the work of the other bureaus.

"The confusion of effort and duplication of work is not yet serious, for the bureaus are limited in their functions by their appropriations so that as yet they seldom cover the same field. Furthermore, they often coöperate with one another by agreement or detail of officers from one bureau to another. As an illustration, the Public Health Service has detailed officers to coöperate with the Bureau of Chemistry, Bureau of Labor Statistics, Children's Bureau, Working Conditions Service, War Risk Insurance Bureau, Employees' Compensation Commission, Commission on Industrial Relations, Federal Board for Vocational Education, and others.

"It can readily be seen that if each bureau was provided with adequate appropriations their expansion would result in competition, jealousies and duplication of work with probable waste of government funds.

"The logical conclusion reached when one studies this question is to bring these several bureaus together and coördinate them under one administrative head. Obviously the several phases of public health work are so intimately related that they cannot work to the best advantage in different departments. Infant hygiene fades imperceptibly into school hygiene; school hygiene into hygiene of the child in industry. Public health is not a problem of separate age groups, racial groups or occupation groups.

"Without question one administrative head should have supervision over all of the civil Federal health activities. The necessity for this was shown during the war and an executive order was issued July 1, 1918, placing civil health activities under the supervision and control of the Secretary of the Treasury, through the Public Health Service (except those exercised by the Bureau of Labor Statistics).

Department of Health.

"If all health activities are to be coördinated under one administrative head, the creation of a department of health with a cabinet officer in

charge, together with a transfer to it of all bureaus or parts of bureaus and divisions of the government now engaged in such activities, is very generally considered the ideal method.

"Whether or not this is practicable at this time is a serious question. It is probable that both great parties will include such a policy in their platform in the next presidential campaign; if so, the chances for a department of health will be brighter than at present.

"In the creation of a department of health all of the bureaus or parts of bureaus and divisions and boards could be easily adjusted without any of them losing prestige. Some functions could be consolidated into single bureaus, others coördinated in existing bureaus or newly created bureaus. The plan should be constructive of the agencies we now have and certainly not destructive.

"The Public Health Service, owing to its size and present organization, would constitute the main foundation upon which to construct such a department. Its mobile corps of medical and sanitary personnel is an excellent one to expand so as to include in the commissioned corps all of the scientists and specialists transferred from the other departments in grades according to the nature of the work and experience of each. Furthermore, some provision should be made to commission high class specialists in the various branches of preventive medicine from civil life in grades commensurate with their ability and experience.

"The mobile corps as expanded should continue under the supervision of the surgeon-general and should perform all of the medical and sanitary duties for all of the bureaus and divisions of the department.

"The mobile corps should be composed of grades corresponding to the rank of surgeon-general, deputy surgeons-general-at-large, assistant surgeons-general-at-large, senior surgeons, surgeons, passed assistant surgeons and assistant surgeons; the number in each grade depending upon the needs of the departments. The tenure of office of members of the mobile corps should be the same as that of the present commissioned medical officers of the Public Health Service, and they should be entitled to the same pay, commutation and allowances as those officers. After the emergency needs of the present health requirements of the country are met, the appointments in the mobile corps should be made only to the lowest grade as are now the requirements in the commissioned medical corps of the Public Health Service.

"The provisions for one well organized disciplined mobile corps of highly trained health experts to perform all of the medical and sanitary duties for all of the bureaus and divisions will doubtless be an effective agency in coördinating the work of those bureaus. The free transfer of the personnel of the corps from duty in one bureau to that of another would make for unity of development and keep them in greater harmony. The mobile corps would be a large one but not so large and so subdivided into special branches as to prevent the development of a corps spirit which would present a united front for the work of the whole department. Without such a mobile corps each bureau would tend to develop separate scientific corps and instead of working in harmony there would spring up jealousies and competition with more or less waste of effort and duplication of work.

"In the organization of the department there should be a secretary and an assistant secretary with the usual office personnel and accounting division. Under the general supervision of the secretary and assistant secretary there should be the executive office in charge of the surgeon-general and in this office there should be three divisions as follows: (1) Personnel, (2) States Relations, and (3) Scientific Research. Each division should be in charge of a deputy surgeon-general. Under the general supervision of the executive officer there should be twelve bureaus as follows:

1. Mental Hygiene.
2. Child and School Hygiene.
3. Rural Hygiene.
4. Industrial Hygiene.
5. Foods and Drugs.
6. Public Health Information.
7. Sanitary Engineering.
8. Venereal Disease.
9. Tuberculosis.
10. Quarantine and Immigration.
11. Hospitals and Relief.
12. Vital Statistics and Epidemiology.

"Their names indicate their functions. Each bureau should be in charge of an assistant surgeon-general. The secretary and assistant secretary should be appointed by the President by and with the advice and consent of the Senate in the same manner as other cabinet officers and assistants. The surgeon-general, deputy surgeons-general, and assistant surgeons-general should be appointed from the mobile corps for a limited term under such tenure of office as will be in the best interest of the government.

"Upon the completion of duty in charge of the executive office, divisions or bureaus, officers should be returned to the mobile corps in such grades as may be considered best. It is believed that this method of organization will tend to further unify the work of the department and promote efficiency in the scientific administrative heads.

"I believe this plan of organization of the depart-

mental administration and the provision for a mobile corps will be better calculated to coördinate the Federal health activities than previous proposals to organize the department in independent bureaus and demobilize the present medical and sanitary corps of the Public Health Service. I cannot believe any plan should be proposed which did not utilize existing agencies to the best advantage.

Division of Health in an Existing Department.

"If it is not practicable to obtain the ideal and create a department of health, I believe it would be practicable to transfer existing Federal health agencies to some existing executive department under an assistant secretary for health and provide the same mobile corps and the same organization of executive office, divisions, and bureaus as have been described above for a department of health. The coördination which is so desirable in the future development of Federal health activities might be accomplished as well in such a division of health as in a department. The prestige of such a division would probably not be so great as a department of health but it would be a great step forward and later if the development warranted it the division could readily be converted into a separate department.

Health Administration.

"The transfer of all Federal health activities from the executive departments and the creation of an independent organization to be known as "A Health Administration" without cabinet representation, I do not believe is at all desirable. Without representation in the cabinet development will be slow and unsatisfactory. At least the experience of such independent agencies has not up to the present been such as to offer much encouragement in this field. Such independent administrations operated during the war with considerable success, backed by the patriotic coöperation of all the people, but could a health administrator expect an order for a health Sunday to be as effective as the orders for gasless Sundays and meatless and wheatless days were during the war? The reversion of feeling is too great to base an argument for a health administration on the operation of the Food and Fuel Administrations during the war.

Expansion of Federal Health Activities.

"In the discussion of the subject of the expansion of Federal health activities I can do no better than quote from a speech made by the majority leader of the House of Representatives, Mr. Mondell, on the subject of Federal aid extension plan for the rehabilitation of industrial cripples, he said:

" 'So far as these duties and responsibilities are to be met and performed through governmental agencies the primary responsibility is, of course, on the local and state governments. They are to a considerable extent responsible for the conditions which surround the citizen in his employment. They are on the ground and familiar with the conditions and armed with authority to deal directly with the situation.

" 'All this being true, it is natural that it be urged that as the responsibility is primarily that of the state and local community, as they are best qualified for the undertaking and their citizens are those most directly interested they should assume and perform a duty and responsibility so clearly theirs.

" 'These arguments have much force with those who realize the importance of confining the activities of the Federal government within proper bounds, and the even greater importance of insisting that the states and their communities shall, for their own good and that of the people generally, continue to assume and exercise their local duties and responsibilities.

" 'There is, however, a growing sentiment in favor of national leadership, stimulus, and direction in various lines in which the primary responsibility is local and in which the states and communities must wield the laboring oar, and that sentiment has been strongly expressed in behalf of legislation such as that now before us. Without minimizing state and local responsibilities for the rehabilitation and the restoration to lives of usefulness of those who suffer the accident of industry, humanitarians, welfare workers, labor leaders, captains of industry, and forward-looking folks of all classes have urged that the Federal government assume a position of leadership and guidance in this work of practical humanitarian endeavor.

" 'The bill provides not only for Federal encouragement and direction in coöperation with the states in the work of preparing those injured in industry for lives of further usefulness, but it also provides for Federal contributions towards this cooperative work. These contributions will, of course, encourage the states and the communities in the performance of their duty in this regard, but more important than any cash contribution is the fact that the national government recognizes the importance of saving industrial cripples from lives of dispair and dependence; of placing them in the way of self-help; restoring them to a condition enabling them to do their useful part in the world's work.'

. . .

" 'No man who ever occupied a seat in this House has spoken more frequently or more earnestly than I against undue and improper extension of Federal authority, jurisdiction and control. But, gentlemen, I have learned something in the more

than twenty years of my service here, and I trust I have grown with the growth of the sentiment of the country in favor of progressive legislation. I trust that I can see things in the light of today rather than from the viewpoint of the past.'*

"Later on in the discussion Mr. Mondell invited attention to the agriculture appropriation which contained among other items the following:

Inspection and cure of scabies in sheep	$525,000
Control of tuberculosis in domestic animals	1,500,000
Control of hog cholera	500,000
Control of Texas cattle tick	750,000
Total	$3,275,000

"In closing he said: 'Verily, I do not understand the philosophy of the gentlemen who insist we may properly do for swine what we may not do for humanity.'†

"The Lever Rural Health Bill as presented to the 65th Congress is an example of the policy advocated by the Public Health Service in efforts to carry out its program of desirable health activities. On December 3, 1918, the Public Health Service presented to Congress a program for the "Conservation of Public Health," which sets forth in outline what the service believes to be necessary to meet the urgent national needs and which will yield the maximum results in protecting national health and diminish the annual death toll taken by preventable disease. Time will not permit the reading of this program of the service for the expansion of Federal health activities but you are referred to Document No. 1539 of the 65th Congress, 3rd session, in which this program is published. The program is the goal for which the Public Health Service is aiming and it is hoped that all interested in public health development will aid the service in reaching its objective. We do not have to wait for the transfer of Federal health agencies into one department for this; all that the service needs is men and money.

"As stated before the Public Health Service already has all of the authority for the investigation of the diseases of man and for the control of contagious and infectious diseases, which under the Constitution can be conferred by Congress. The greatest limitation is the amount of appropriation. Adequate expansion of the service is only limited by the lack of money and men. Then why not all unite first to obtain health appropriations and when that is accomplished, I believe the coördination of existing agencies will be much more easily accomplished. If all health workers would get together and coördinate their effort in backing up existing agencies much more could be accomplished than by waiting for an ideal organization. Why wait? Use the means we have and results will come in large measures.

"On the other hand even should we obtain a department of health or an assistant secretary for health with the transfers, we still would be confronted with the same necessity for appropriations and the personnel problem will be just as difficult to solve as now. The greatest needs in Federal health activities are money and men.

"In addition to the expansion of Federal health activities along the lines of extending Federal aid to state and local health agencies, the Federal government has at least two definite responsibilities: (1) International control of disease, and (2) Interstate control of disease.

"For the international control it operates the maritime quarantine, and supplements this by the work of its consular service and the detail of public health officers to the places which are likely to become a menace. For the interstate control of disease, the Federal government under several acts of Congress undertakes certain measures, mainly through coöperation with state and local health authorities, and uses the Public Health Service for this purpose. In the past, the Public Health Service has largely confined itself to measures of control after the disease needing control had gained a foothold in a state and become a menace to other states. Under more modern methods, however, it has realized that its activities should be aimed at these diseases long before they become a menace. As an example of the latter methods, the service is enlarging the system of control of water supplies furnished to the traveling public by interstate common carriers. This control was first inaugurated January 25, 1913.

"State and local health agencies have a vital interest in the inter-state control of disease as well as the intra-state and intra-community control.

"With such closely related responsibilities, why not form a joint partnership and work together for the one service—prevention of disease? For example a case of typhoid fever in a remote rural district is a matter of joint interest to the county, state and Federal health authorities. The typhoid germ does not recognize the county or state lines. It may find its way into intra- and inter-state traffic and cause the loss of many human lives and the expenditures of large sums of state and Federal funds. The rational procedure would be to form the partnership and prevent or control all preventable diseases at their source.

"Such partnership would coördinate the work of

* Congressional Record, October 11, 1919, p. 7134.
† Congressional Record, October 14, 1919, p. 7275.

Federal, state and local health agencies. I am sure all of us recognize the fact that there is just as urgent a necessity for this as there is for coördinating Federal health activities.

"In the development of such a partnership we should not lose sight of the American principle of local self-government. The local health unit should therefore be organized on this principle by each locality, but the state and Federal governments should bear a just proportion of the cost and exercise such supervision as will insure efficient service.

"With proper coördination between Federal, state and local health activities, with adequate expansion of the interstate operation of the Public Health Service and with the Federal aid extension plan, a synchronous attack can be made in all states for the control of disease.

"Such unity of action will bring results and public health workers will reach many of the objectives for which they have fought for many years. Without unity of action and with internal dissensions we will make little progress and the hope of reaching our objectives will fade."

In taking up the discussion of Dr. Rankin's paper Dr. W. S. Small of the United States Bureau of Education, Washington, D. C., spoke as follows:

"I wish first of all to correct certain errors which seem to be in the atmosphere. Dr. Rankin in his paper stated that a bill had been introduced, or is under consideration, by which the Bureau of Education, the Department of the Interior, is seeking also to gain entrance to the public health field. (A similar statement was made by Dr. Frankel in his presidential address.) The statement is erroneous." He then continued stating that he was not certain about what bill Dr. Rankin refers to.

"I do not know what bill he has reference to. It may be he has reference to the so-called Smith-Towner Educational Bill for the creation of a Department of Education, and the payment of Federal funds to the states for the promotion of certain educational objects. Among the objects specified is physical education, including instruction in the principles of health and sanitation and the provision of school nurses, dental clinics, and otherwise promoting physical and mental welfare.

"This bill is the child of the National Education Association. It is fairly obvious that the Department of the Interior is not sponsoring a bill for the creation of a new department.

"It may be that Dr. Rankin had reference to the preliminary draft of a Federal bill for the promotion of physical education. The committee that prepared this preliminary draft included a representative of the Public Health Service, of the Bureau of Education, and a third member—the New York state supervisor of physical education. That bill has not yet been introduced. If he had reference to that bill, let me say he has misunderstood its purport and significance.

"Let me illustrate: At the present time in the state of North Carolina, the State Department of Health reaches over, very properly, I think, into the State Department of Education and takes $75,000 of school funds and applies the same to school medical inspection. Under the tentative bill, as drawn, the same procedure might be continued in the state of North Carolina. It would be for the legislative body of the state of North Carolina to determine, so far as I can see. This is true also for the Smith-Towner Bill.

"I wish to call your attention to this fact: North Carolina and the two or three other states that designate the State Department of Health to administer school health work are only a few of the great number of states that have enacted legislation for what is variously called school hygiene, medical inspection and school health supervision; and that the great majority of these designate the school authority as the responsible authority for administering those acts.

"I am not arguing here that the administration of what is technically known as school medical inspection, and what is less accurately designated as school hygiene, is the prerogative of either the public education authority or the public health authority—that either the one or the other is the sole body to administer such acts. I am simply pointing out that there is wide diversity of practice. I might point out that in foreign countries there is considerable diversity of practice. In France, England, Switzerland and other continental countries, before the war—and I do not think the legislation has been changed—school hygiene was exclusively the responsibility of the school authorities. Dr. McLaughlin told me a while ago this was about to be changed in England. I know there has been a department of health created, but whether the administration of school medical inspection has been transferred to it I am not prepared to say.

"The only point I am making is this: That there is wide diversity of practice; that the point of view is different in different places, and that we need to go slow in assuming that we have settled theoretically, as we know we have not practically, the administrative question.

"There is a type of man who can figure out on paper what he thinks is the logic of the situation. He is generally a fellow somewhat obsessed with words, who thinks in terms of words, who can lay out the plan with absolute certainty. But I want

to call your attention to the fact that this is a big country. It would be a dangerous thing to say that what is good practice in North Carolina is necessarily the best practice in Utah; that what is the best practice in New York is necessarily so in Texas. At any rate, Utah and Texas do not seem to think so. It does not follow that what is the best practice in Boston is necessarily the best practice in the city of New York. It is perfectly easy for this man to be quite sure he is absolutely right, but it is quite a different thing to put it over.

"The public health interest is not peculiar with respect to the "fifty-seven varieties" in the governmental departments. Dr. Rankin and Dr. Warren pointed out that public health work is being done in a number of governmental departments. I could point out to you that the day war was declared there were twenty-two different governmental agencies in Washington carrying on educational activities. During the war the number was increased. I want to say that the matter of focalizing and coördinating governmental activities, in respect to public education, is quite as vital and difficult as that of focalizing and coördinating the activities relating to public health.

"I am in entire sympathy with this movement for coördinating public health work. I took a very humble part some eight or ten years ago in the movement for a department of health. I am in entire sympathy with the recommendation of Dr. Rankin that there shall be a thorough-going survey of the governmental activities in regard to public health. Just as I hope that in connection with the Smith-Towner Bill there will be a thorough survey with respect to education. This is the thing I want to say. We should not be pulling two ways and be more concerned about our institutional ambitions than about the health and education of the American people. There are some people in both camps who are more interested in exploiting the American people in the interest of their institution than they are in building up the American people. That is human nature, but we must purge our souls of that sort of thing if we are going to get ahead. We must stop sitting in our swivel chairs crying out, 'This is mine,' and fighting about it.

"The point I want to emphasize is, that there is a twilight zone between public education and public health. The thing we want to do is to survey that zone and see where there is interpenetration and overlapping. Overlapping can and should be done away with; interpenetration cannot, and ought not to be done away with. You must have coöperation there and not try to draw a geometrical line where it cannot exist in life.

"I attended a meeting recently at which an able and cultivated woman was trying to say many important things in a few minutes. Ideas were outrunning words. Public health, child welfare and other matters were swiftly summoned and dismissed. In her attempt to say something about child welfare and health the word 'health' was somehow telescoped, and what she said was, 'What we are trying to do is to promote child helfare.'

"That is just what we are going to do if we do not get over the idea that we, individually and institutionally, know everything and have all the responsibility, and the other side of the fence has not anything. The child is an organism. We are likely to tear him apart in our efforts to build him up.

"There may be some here who are familiar with a certain oriental story of ancient times. The story runs that two women came before a wise judge with a child, each claiming to be the mother of the child. The judge, being a very wise man, called for a scimetar and said, 'I will split this child down the middle; you take one half and the other woman the other.' Then one of the woman cried out: 'Oh, no, give him to my rival!' But the wise judge said: 'Nay, take the child; he is thine.'

"Friends, I do not know whether we are going before a wise judge with a curving sword, but I do know we are going to be judged according to our works. There is a very great danger that in our efforts to serve our own particular god whom we worship truly and honestly, the bones of the child may be broken by pulling him asunder or that he may be left to perish while the institutional rivals fight their battles in the good old way.

"What I plead for is mutual understanding and mutual coöperation."

In the discussion of Dr. Rankin's paper, Dr. Anna E. Rude of the Children's Bureau, Washington, spoke in defense of the health work undertaken by the bureau which she set forth as a minor part of the bureau's work. The act creating the bureau outlined its duties to be the investigation and report of all conditions among all classes of children. Of course, any well-rounded-out child welfare problem must include the health problems of the child. As an example of a voluntary effort at coöperation among the various Federal bureaus, Dr. Rude outlined the bill which the bureau is fostering, known as the bill for the Protection of Maternity and Infancy. Such a bill was before Congress last year, and the American Public Health Association had opposed it because it created in each state a separate board to be known as the Maternity and Infancy Hygiene Board. Dr. Rude explained, in relation to its failure to pass last year, that it did not fail to pass the committee hearing, but it was too

late in the session for Congress to act upon it. It has been redrafted to meet the objections made last year. It has been recently introduced by a southern senator who spontaneously selected it from the many bills left over and introduced it with some modifications. Since then, it has been further modified.

This bill provides for a central governing board to be composed of the Commissioner of Education and the Surgeon General of the United States Public Health Service, the Secretary of Labor, and the Chief of the Children's Bureau, thus representing three Federal departments. The bill provides for $10,000 annually to be given outright to each state, the precedent for which is to be found in the Vocational Educational Bill. Aside from this, there will be an additional appropriation based on the state population which must be met by a similar appropriation from the state. The Federal Board of Maternity and Infancy must approve the state's plans before the appropriation will be given. The objection of last year that the bill did not administer through existing state boards of health has been removed, so that as it now reads, it may be administered through a state board having a Division of Child Hygiene. There are thirty states having such divisions, against eleven such states a year ago. For states not having such divisions, a Maternity and Infancy Board may be appointed by the governor. Miss Rude called attention to the fact that states which at the present time have no state divisions of hygiene would not lose time in organizing them. Such an appropriation would be welcomed by any state.

The Children's Bureau has limited most of its public health efforts to investigations dealing with the health conditions of mothers and young children of school age, and to the stimulation of public education in these matters. The present bill is being supported with the belief that it will be an effective means for securing rapid advance in this work, and be helpful in furthering better health conditions for mothers and children.

REPORTS OF COMMITTEES.

Report of the Committee to Coöperate with the Representative of the Carnegie Foundation Now Engaged in the Study of the Health of the Foreign Born.

The committee was appointed July 14, 1919, and presented this report at the meeting of the American Public Health Association at New Orleans, October 27–30, 1919. Those present were Dr. Michael Davis, representing the Carnegie Foundation, and Doctors Francis E. Fronczak, W. H. Brown and H. T. Vaughan, representing the American Public Health Association.

The discussion of the question of public health among the foreign born first resolved itself into a question of what language should be used in the literature distributed for educational purposes by the various health departments. It was thought that the use of compulsion, that is, the exerting of undue pressure upon the foreign born to read English, would act as a barrier and create opposition to any attempt to force the use of the English language. Furthermore, the primary principle involved in the publication of such literature is to get the individual message to the people as soon as possible and in such a manner that they cannot fail to comprehend the purpose. Although the use of parallel columns, by which means English would be employed together with the corresponding foreign translations, might be encouraged, especially in connection with the more "chronic" public health problems, such as tuberculosis and infant welfare, still it seemed that very little attention would be paid by the average foreigner to the English translation. In the case of "acute" problems, such as the control of influenza, diphtheria, scarlet fever, etc., it was the more general concensus of opinion that there would be little accomplished by using any language other than the one to which the individual was accustomed.

Dr. Davis suggested the utilization of practical hygiene and public health material in the public schools to take the place of the uninteresting material generally used by such schools in teaching English. Dr. Brown suggested the use of such public health material in the Americanization work which is being done by most cities among the employees of factories and general industries. Dr. Davis was of the opinion that there is a general tendency among the foreign born to attempt to protect and extend the use of their own native language, this doubtless resulting from some racial or religious instinct of the individual.

Dr. Fronczak reported that this tendency has generally ceased to exist in some nationalities, especially Polanders, since the close of the European war. This obviously is the result of a change of political attitude.

A concrete example of the employment of compulsion in attempting to Americanize the foreign born may be shown in the handling of the midwife situation. Most of our leading industrial cities of the country still have a very large percentage—from thirty to fifty—of their births attended by midwives. With the gradual education of the midwife and of the people themselves and by the elimination of the more undesirable type, the per cent of

births attended by midwives has greatly decreased in some cities within the last six or eight years. Should, however, an attempt be made to compel the employment of the male physician at child birth, it is believed that such compulsion would merely antagonize the foreign born and would encourage the use of deceit, not only among the mothers themselves, but also among a group of doctors who would be quite willing to shield the midwife who might be practicing without a license. The entire attitude would be antagonistic and would do much to retard the progress of Americanization.

The proper employment of the individual's native language might serve to make the people appreciate that the American plan of doing things is better than their own. This must be done in such a way that the individual will gradually and unconsciously feel that there is a better method than that to which he has been accustomed.

Dr. Fronczak moved and it was voted that it be the opinion of this committee that health departments throughout the country should use for their literature the language which the people themselves are accustomed to use.

The question was discussed as to whether there is a distinct public health problem for the foreign born. Dr. Davis reported statistics showing that, in general, the infant mortality rate is higher among the foreign born than among the American born. This certainly has been the general experience of all cities in which the foreign born element forms a large portion of the total population. The pneumonia death rate among Italians in New York City was shown to be five or six times as great as that for a group of Jewish people of the same age group, both classes apparently living under the same home conditions. The importance of statistics as to nativity was emphasized. In general, the results of the investigation of the Committee on Americanization of the Carnegie Foundation showed that there was great variation between the morbidity and mortality rates for the American born and the foreign born, and their studies seem to warrant further investigation.

The question of handling midwives was discussed, and it was the general concensus of opinion that they could not be eradicated within the next twenty years. They should be recognized as such and then regulated. Dr. Fronczak moved and it was voted that it was the opinion of this committee that states with a large foreign population should take cognizance of the existence of midwives and should supervise their methods, care of equipment, etc.

Venereal and child welfare problems seem to be largely questions of the employment of a suitable language, which, in the opinion of the committee, should be the language of the individual himself. Likewise the success or failure of lectures and exhibits depends largely upon the employment of a proper language.

In the discussion of hospitalization of the foreign born, the point was brought out that this class look upon the problem of hospital care in a different way from the American born. This may be due somewhat to superstition and racial or religious scruples, but it was the opinion of the committee that the main factor at fault was that the individual on admission to a hospital would find himself among people talking a different language than his own and doing things in a way which he could not readily comprehend. It was therefore suggested that in cities with a large foreign population certain hospitals, to which the taking of foreign born patients should be encouraged, should have at least one or two nurses who could speak foreign languages. The psychic effect upon the patient can well be appreciated.

The question of the elimination of quack doctors and the doing away with fake advertisements in the foreign papers was discussed. These questions primarily involve education. It was suggested that quack advertisements might be replaced by those written by the local health department in advertiseing its own clinics, etc.

Dr. Davis suggested three important items in the program of public health work among the foreign, namely: (1) Localization; that is, clinics or health centers, or branch administrative offices in neighborhoods which are close to the people, this being especially important in preventive and educational work; (2) education of nurses, social workers and doctors in the backgrounds, traditions, customs and to some extent, in the language of the foreign born; (3) coöperation of the people themselves, secured wherever possible, through individuals or through organizations, which are generally found existing among the foreign born.

Dr. Brown moved and it was voted that the nature of the problem which has been referred to this temporary committee is of such importance as to warrant the appointment of a permanent committee, whose duty it should be to study health problems among the foreign born, such committee to make further studies and to stimulate general interest in this important subject.

Henry F. Vaughan, M. D., *Chairman*.
Walter H. Brown, M. D.
Francis E. Fronczak, M. D.

PROGRESS REPORT OF THE INFLUENZA COMMITTEE.

Those members of the emergency Influenza Committee, appointed at Chicago and in attendance at the New Orleans meeting, submit the following conclusions as the report of this committee for the present year:

1. It is the opinion of the committee that there will be recurrences of influenza during the coming winter, milder in character and extent than the epidemic of last year.

The history of the disease is characterized by wave-like recurrences; if it is granted that we are dealing with the same disease, previous influenza periods have demonstrated that a certain percentage of the population is susceptible, and the epidemic of 1918–19 probably left a relatively small proportion of this percentage untouched by the disease. Further, the deaths in the recent epidemic exceeded the influenza mortality during any previous four-year period in recent times when influenza was in excess of normal.

2. The committee urges upon health officials the continued energetic use of the best known methods for fighting an acute respiratory epidemic disease in handling further influenza outbreaks, in spite of a lack of eivdence of the complete efficacy of any or all of the measures recommended.

Certain measures are effective in controlling the spread of scarlet fever and diphtheria, for instance. These same measures are less effective in the control of measles, and evidently less effective in the control of influenza. Yet we are not justified in abandoning the program of defense against any of these diseases, simply because it varies in utility in different infections. Further, against the milder manifestations of influenza to be expected this year, it is probable that ordinary defensive measures will be relatively more successful.

3. The committee believes that the element of individual immunity offers the greatest promise for the future delimitation and control of influenza. It appears that the recent epidemic was limited primarily by an exhaustion of susceptible human material, although special hygienic and suppressive measures may have been in part effective in particular instances. The prognosis as to recurrences of a character less severe in extent and virulency is based essentially on the assumption that the epidemic of 1918–1919 reached most of the susceptible individuals, and probably produced in the great majority of those affected a relative, though perhaps temporary, degree of immunity.

For these reasons it would seem that efforts to discover the infective agent, and to produce a means for artificial immunization are justified.

4. Finally, the committee advocates that every opportunity be taken to study and follow up the epidemic, by laboratory investigations, by statistical research, and by the promotion of medical examination work for the detection of influenza sequellae.

Investigations in the last mentioned field carried out thus far indicate a slight increase if any in tuberculosis following the epidemic, and no marked increase in other defects such as cardiac, renal, nerve or other lesions.

A special progress report is being submitted to the Association by the Subcommittee on Statistics.

Respectfully submitted,

W. A. Evans, *Chairman,*
G. W. McCoy,
Henry Albert,
Wm. H. Davis,
D. B. Armstrong.
Committee on Influenza.

MEETINGS OF THE BOARD OF DIRECTORS

Seventeen members of the Board of Directors of the A. P. H. A. were present at New Orleans, there being two meetings of the Board, one on October 26 and the other on October 29. At the first of these the following reports and items of business were considered:

The president and secretary pointed out that during the past year the membership had been increased 113 per cent, the subscriptions to the Journal, 61 per cent, and the Association income, 53 per cent. The total circulation of the Journal is at present 4,458, of which 3,412 is composed of Association memberships.

Dr. Evans presented a committee report on state health societies, urging that the work of organizing such societies be vigorously pushed during the next year. Petitions for affiliation of the state health societies in the following states were accepted: Kansas, Montana and Michigan.

Dr. Frankel reported signs of interest in the popular health magazine on the part of a philanthropic fund. He was appointed a committee of one to continue negotiations for the purpose of financing the magazine.

The question of discontinuing the $1 associate membership was discussed, because of the tendency of some professional sanitarians to become associate members at $1, instead of active members at $5. It was voted to hold the matter over for consideration at a later meeting, meanwhile making every effort to induce those who had a professional interest in public health to become active members.

It was voted to permit those petitioning for sec-

tions in military hygiene, child hygiene, and personal hygiene to conduct future meetings, with a view to demonstrating the demand for sections before authorizing the establishment thereof.

Dr. Vaughan read a report dealing with the Americanization of the foreign born, and it was concluded to receive the report and continue the committee.

Professor Turner, of Massachusetts Institute of Technology, pointed out to the directors that twelve different kinds of public health degrees are offered in the United States and Canada, and urged that public health courses and public health degrees be standardized as has already been done in the case of medical degrees. It was voted to appoint a committee of health educators and administrators to take up this work. An independent committee of health educators, already existing, including Professor Winslow, Professor Sedgwick, Dr. Welch, and others, is to be invited to form part of the A. P. H. A. committee.

The Board of Directors sanctioned the issue of a public health year book provided it became apparent that this would be a financial success.

The secretary pointed out that the public health encyclopædia proposed by Dr. Goldwater would have to be subsidized if published, and it was voted to appoint a committee to take the matter up further with Dr. Goldwater.

At the second meeting the officers of the Association for the coming year were elected. Their names appear on the first white page of the Advertising Section of this issue of the JOURNAL.

San Francisco was chosen for the next meeting place. Cleveland, Ohio, and Seattle, were contestants. The decision to go to San Francisco was reached only after serious consideration. It was pointed out by several that the Association had never been to the Pacific Coast and that a meeting there would be a great stimulus to a public health movement which has already made marked progress. The Westerners have long felt neglected, pointing out that they have loyally attended one meeting after another in the Mississippi Valley and in the East, and that the Association now owes it to the West to hold a meeting there. Dr. W. H. Kellogg, who spoke for San Francisco, pledged California to meet all of the requirements for a successful meeting by way of providing funds and coöperation of local committees.

A committee was authorized to discuss with child hygiene associations the question of forming a child hygiene section in the A. P. H. A. (Both the child hygiene meetings were highly successful, the attendance reaching as high as 200.)

Conferences were arranged with the American Association of Medical Milk Commissions which had manifested interest in affiliating with the A. P. H. A., and it was voted that a committee be appointed to draw up necessary changes in the constitution to promote the affiliation of such national health organizations with the A. P. H. A.

Dr. Small spoke in favor of a bill to promote national physical education. The Association had by resolution already approved of the principle of physical education.

ASSOCIATION NEWS

HEALTH EMPLOYMENT BUREAU.

Help-wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Competent man for position of second assistant sanitary engineer of state board of health. Usual duties, especially inspection of operation of water works, water purification, and sewage disposal. Salary, $1,800, with two weeks' vacation. Address H. A. C. 312, care of this JOURNAL.

Epidemiologist, with or without experience. Apply, giving full information and references. Address H. E. B. 314, care of this JOURNAL.

Graduate Veterinarian wanted for food and dairy inspection work. Apply, with full particulars, to City Health Department, Winston-Salem, N. C.

The League of Red Cross Societies, now being organized, is to become virtually the Health Department of the League of Nations. The Division of Sanitation, of which Prof. George C. Whipple is director, with headquarters at Geneva, Switzerland, will have charge of these activities, which at first will cover the stricken parts of Europe, but will ultimately extend to South America, Africa and Asia. Professor Whipple and his associate director, Col. F. F. Longley, desire to obtain the names of a dozen or more sanitary engineers between the ages of 25 and 40 who are willing to engage in this work and who will be ready to answer an emergency call this winter in case the need should arise. Address Prof. George C. Whipple; Harvard University, Cambridge, Mass.

LIST OF NEW MEMBERS

PROPOSED FOR ELECTION TO THE

A. P. H. A.

FROM OCTOBER 19, TO NOVEMBER 21, 1919.

Sponsors —and— (States arranged in alphabetical order)	The New Members Whom They Introduced
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PROF. CHARLES GILMAN HYDE, Berkeley, Cal.	MR. ANDREW MARTIN JENSEN, Civil Engineer, Fresno, Cal.
C. G. GILLESPIE, Berkeley, Cal.	
FRANK L. KELLY, M. D., Berkeley, Cal.	ROBERT THOMAS LEGGE, M. D., Professor of Hygiene, University of California, Berkeley, Cal.
PROF. W. T. SEDGWICK, Cambridge, Mass.	
R. W. NAUSS, M. D., Sacramento, Cal.	C. A. KOFOID, Ph. D., Professor of Zoology, University of California, Berkeley, Cal.
W. H. KELLOGG, M. D., San Francisco, Cal.	J. E. CHAPIN, M. D., Health Officer, Redwood, Cal.
	J. I. CLARK, M. D., City Health Officer, Santa Ana, Cal.
	ALLEN F. GILLIHAN, M. D., District Health Officer, State, California State Board of Health, Sacramento, Cal.
	S. H. RANTZ, M. D., Health Officer, Placerville, Cal.
	WILLIAM SIMPSON, M. D., County Health Officer, San José, Cal.
	WILLIAM A. TALTAVALL, M. D., Health Officer, Redlands, Cal.
	GAVIN J. TELFER, M. D., Health Officer, Los Angeles, Cal.
	ALLEN L. WINTER, M. D., Surgeon, U. S. P. H. S., Altadena, Cal.
SOL PINCUS, Washington, D. C.	G. A. CRYER, M. D., Anniston, Ala.
	MR. V. M. EHLERS, State Sanitary Engineer, Austin, Tex.
	MR. H. W. VAN HOVENBERG, Sanitary Engineer, Texarkana, Ark.
CHARLES J. HASTINGS, M. D., Toronto, Ont.	MR. JOHN A. COWAN, Toronto, Can.
	MR. WILL L. HUTTON, Brantford, Ont.
MISS OLIVE CHAPMAN, Denver, Col.	AGNES PAULSEN, R. N., Nurse, Minnequa Hospital, Pueblo, Col.
T. E. REEKS, M. D., New Britain, Conn.	J. C. BARKER, M. D., Health Officer, New Milford, Conn.
	W. B. BISSELL, M. D., Health Officer, Lakeville, Conn.
	MR. E. W. BULL, Health Officer, Kent, Conn.
	I. L. HAMANT, M. D., Health Officer, Norfolk, Conn.
	MR. I. P. HORNBECK, Health Officer, Falls Village, Conn.
	CHARLES W. JACKSON, M. D., Health Officer, Watertown, Conn.
	RICHARD J. LAWTON, M. D., Health Officer, Terryville, Conn.
	F. H. LEE, M. D., Health Officer, Canaan, Conn.
	M. C. McINTYRE, M. D., Health Officer, Roxbury, Conn.
GRACE WHITFORD, M. D., Azona, Fla.	MISS AGNES NEVA McKINNA, Welfare Worker, Jacksonville, Fla.
B. L. ARMS, M. D., Jacksonville, Fla.	DANIEL C. CAMPBELL, M. D., State Board of Health, Jacksonville, Fla.
	MR. M. F. HASBROUCK, New York City.
	MR. DWIGHT T. SCOTT, President National Vaccine and Antitoxin Institute, Washington, D. C.
J. P. KENNEDY, M. D., Atlanta, Ga.	MR. J. E. ACHER, City Hall, Atlanta, Ga.
SADIE BAY ADAIR, M. D., Chicago, Ill.	EMMA MacKAY APPEL, M. D., Chicago, Ill.
	GRACE H. CAMPBELL, M. D., Medical Inspector Certified Milk Commission, Chicago, Ill.
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S. J. CRUMBINE, M. D., Topeka, Kan.

CHARLES J. BALL, New Orleans, La.

G. O. BERGERON, New Orleans, La.

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MISS ANNA CONSTABLE MOORE, Assistant Bacteriologist, Albany, N. Y.
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B. B. WARREN, M. D., Covington, La.
GUY S. ST. AMANT, M. D., Health Officer, Gonzales, La.
MAUD LOEBER, M. D., New Orleans, La.
EDWARD MOREWOOD ALBERS, M. D., New Orleans, La.
CHARLES W. DUVAL, M. D., Professor Tulane University, New Orleans, La.
EDMUND MOSS, M. D., Medical Director Public Schools, New Orleans, La.
ANNA E. REIN, R. N., Red Cross Nurse, Gulf Division, A. R. C., New Orleans, La.
M. T. VAN STUDDIFORD, M. D., New Orleans, La.
ROBERT G. HAWKINS, M. D., Health Officer, Palmetto, La.
MISS CLARA E. BUBENZER, Public Health Officer, Shreveport, La.
MR. F. T. WHITED, Shreveport, La.
ARTHUR G. FOWLER, Superintendent Municipal Water Works, Cumberland, Md.
BOARD OF HEALTH, Adams, Mass.
MISS LOULA E. KENNEDY, Boston, Mass.
SIMON F. CURRAN, M. D., Health Officer, Dorchester Center, Mass.
MISS HAZEL WEDGWOOD, Health Instructor, South Boston, Mass.
MASSACHUSETTS CATHOLIC ORDER OF FORESTERS, Attn. Dr. Francis J. Hanley, Whitman, Mass.
ISAAC ABRAHAMS, B. S., M. D., Battle Creek, Mich.
MR. G. W. BROUSSARD, Bacteriologist, Detroit, Mich.
MR. LAWRENCE T. CLARK, Bacteriologist, Detroit, Mich.
MR. W. C. RUSSELL, Flint, Mich.
DAIL STEEL PRODUCTS CO., Lansing, Mich.
JOHN SUNDWALL, M. D., Professor of Hygiene, University of Minnesota, Minneapolis, Minn.
CHARLES E. SMITH, JR., M. D., Secretary State Board of Health, St. Paul, Minn.
J. D. GREEN, M. D., Health Officer, Brooksville, Miss.
A. J. WARE, M. D., Greenville, Miss.
H. L. CROOK, M. D., County Health Officer, Jackson, Miss.
HARDIE R. HAYS, M. D., Director Bureau V. D., Board of Health, Jackson, Miss.
MR. J. A. BLAIR, Health Inspector, Pascagould, Miss.
CLARK H. YEAGER, M. D., International Health Board, Tupelo, Miss.
S. MYERS, M. D., Health Officer, Vicksburg, Miss.
W. E. NOBLIN, M. D., Health Work, Yazoo City, Miss.
J. W. GREENE, M. D., Secretary Board of Health Jackson County, Mo., Independence, Mo.
C. W. CHASTAIN, M. D., County Health Officer, Plattsburg, Mo.
MR. JOSEPH A. CORBY, Saint Joseph, Mo.
MRS. HARRIET E. CARRIER, Public Health Nurse, Great Falls, Mont.
MR. L. W. WELLINGTON, Health Officer, Berlin, N. H.
MISS E. V. DUBS, Pemberton, N. J.
WILLIAM C. BLAKE, PH. D., Health Officer, Princeton, N. J.
HARRIS MOAK, M. D., Bacteriologist, Brooklyn, N. Y.
RACHEL M. PALMER, R. N., Visiting Nurse, Geneva, N. Y.
FREDERIC S. LEE, M. D., Columbia University, New York City.
DR. SCHULTZ, care of International Health Board, New York City.
STAFFORD BAKER SMITH, M. D., Health Officer, New York City.
WILLIAM ALFRED SAWYER, M. D., Medical Director, Rochester, N. Y.
F. J. LOOMIS, M. D., Watertown, N. Y.
MABEL E. ODELL, R. N., School Nurse, Lyons Union School, Lock Berlin, Wayne County, N. Y.
UNITED JEWISH CHARITIES, Cincinnati, Ohio.
MRS. MARION LANGENBERG, School Nurse, North Bend, Ore.
W. B. MORSE, M. D., Health Officer, Salem, Ore.
MR. J. M. DELANEY, State Department of Health, Engineering Department, Harrisburg, Pa.
MR. JAMES BACON DOUGLAS, Safety Welfare, Philadelphia, Pa.
M. SPIRO, M. D., Pittsburgh, Pa.
N. E. NEWBURY, M. D., Health Officer, Scranton, Pa.
MR. WILLIAM ATKINS GAYER, State College, Pa.
CASPAR WISTAR MILLER, M. D., Health Officer, Wallingford, Pa.
TEOFILO CORPUS, M. D., District Health Officer, Cabanatuan, Nueva Ecija, P. I.
V. DE LOS SANTOS, M. D., District Health Officer, Bayombong, Nueva Vizcaya, P. I.
ISMAEL VILLARICA, M. D., District Health Officer, Iba, Zambales, P. I.
HAROLD STEPHEN BUCKLIN, M. D., Brown University, Pawtucket, R. I.
MISS MARY S. GARDNER, Public Health Nurse, Providence, R. I.
EDGAR A. HINES, M. D., Seneca, S. C.
F. W. FREYBERG, M. D., Surgeon, Aberdeen, S. D.
EUGENE A. GILHERT, M. D., Assistant Director of School Inspection, Chattanooga, Tenn.
MR. J. A. LE PRINCE, Sanitary Engineer, Memphis, Tenn.
OLIN WEST, M. D., Secretary Tennessee State Board Health, Nashville, Tenn.
LUIS GREGORIO CHACIN ITRIAGO, M. D., Caracas, Venezuela.
MR. CHRIS R. FRASCH, Sanitary Officer, Seattle, Wash.
YANCEY, C. BLALOCK, M. D., Health Officer, Walla Walla, Wash.
H. S. BRODE, PH. D., Professor of Biology, Whitman College, Walla Walla, Wash.
MISS MARGARET THOMAS, Public Welfare Department, Barron, Wis.
CLARENCE J. KENNEY, M. D., Health Officer, Milwaukee, Wis.
C. Y. BEARD, M. D., Surgeon, 122 E. 27th St., Cheyenne, Wyo.

DEATH OF DR. BISSELL.

The Association has had the misfortune to lose by death an active, helpful member, W. G. Bissell, M.D., of Buffalo, N. Y. Dr. Bissell was in attendance at the New Orleans meeting and was there elected Vice-Chairman of the Laboratory Section of which he had previously been Secretary.

BOOKS AND REPORTS REVIEWED

Health Education in Rural Schools. *J. Mace Andress, Ph. D. Boston: Houghton Mifflin Company. 1919. Pp. 121+viii. Price, $1.60.*

The importance of health education and protection of school children is thoroughly established. It is recognized that the future health and vigor of the race depend on the proper care and instruction of the children today. The vast number of men rejected in the first draft because of physical defects would indicate that much can be done to recognize early physical defects, and to correct them while they are not very serious. Medical inspection and public health nursing among school children are spreading in our cities today, but the movement has hardly even obtained a foothold in the rural schools. Yet it is in these schools where health protection and education seem to be particularly necessary. The purpose of this book is to emphasize the subject of health protection and education of rural school children, and to place before the teacher in the rural schools, a text-book which may serve as a guide and stimulus in this part of her work.

There are many sanitary defects in the rural schools. The lighting is usually bad; the seats and desks are non-adjustable; the school buildings are poorly heated; the water is obtained from shallow wells and springs which are often polluted; the open bucket and common drinking cup are used; the doors and windows are seldom screened; and the toilet facilities are exceedingly bad. The rural schools are also deficient in medical inspection, dental clinics, eye, ear, nose and throat clinics, public health nurses, open air classes, and facilities for warm luncheons, athletics and recreation. Since provision is not made for these activities, it should, therefore, be the task of the teacher to attempt to remedy sanitary defects, and to recognize physical defects among the children. Much improvement can be obtained by enlisting the coöperation and interest of the parents and the community, through the parent-teacher associations and the other local organizations. In teaching the children habits pertaining to healthful living, it should be recognized that the instruction should be pleasant and interesting, and should if possible, be dramatized, in order to produce a lasting effect. Sometimes effective habits can be cultivated as a result of competition, or by offering marks, honors, or prizes. The children will also be willing to do many things out of love and respect for the teacher.

The book is well written and illustrated, and is simple and specific. In addition to the items already enumerated, it considers such questions as heating and ventilation, posture, common colds, the care of the teeth, eyes, ears, nose and throat, proper diet, play and physical education, and means for combating flies, mosquitoes, lice, rats and mice. The book will be found to be of particular value to the rural school teacher, who appreciates the important relationship of health to education, and who is anxious to do what she can to improve the health of the children, and the sanitation of the school.

Murray P. Horwood, M. S.

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Milk. *Paul G. Heineman, Ph. D., Director of the Laboratories of the United States Standard Serum Company, Woodworth, Wis. Philadelphia and London: W. B. Saunders Company. Pp. 684, illustrated. Price, $6.00 net.*

An excellently written and up-to-date book on the subject of milk. As can be seen by the headings of the chapters it will be found useful to the sanitarian, the physician, the laboratory worker, the producer, the economist and the student. The subjects covered are historical, the physiology of lactation, physical properties of milk, general chemistry of milk, physical and chemical examination of milk, adulteration of milk, enzyms of milk, transmission of toxins and antibodies by means of milk, germicidal action of fresh cow's milk, microörganisms in milk, kinds of microörganisms in milk, fermented milk, bacteriological examination of milk, milk borne infections, certified milk, pasteurization of milk and other methods of reducing the germ content, control of milk supplies, economic aspect of milk production, milk in its relation to infant feeding, butter, cheese, ice-cream and ices, condensed and desiccated milks and milks from mammals other than the cow.

It is to be regretted that the author of such an excellent book should not have taken advantage of the opportunity to correct the prevalent opinion held that cow's milk has a much higher acidity than human milk. The erroneous statements as to the differences in the acidity of the two milks has been due to a lack of knowledge of the chemistry of milks and more recent investigations have shown, that the acidity of cow's milk is about a third of that usually given in the text-books upon the subject,

and that the older methods for determining the acidity of milk are not reliable.

A. W. Bosworth.

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"Health Journal."—The Health Journal of the Massachusetts Tuberculosis League made its initial bow to the public with the October, 1919, issue. Its purpose, as announced, "is to enable the state league and its affiliated organizations to become acquainted and thus to profit from each other's experiences and good ideas." The first issue was given wide circulation in the state and sent to each state board of health and tuberculosis association in the country. Anyone interested may have his name placed upon the mailing list. The editorial staff has Robert V. Spencer for managing editor, and John B. Hawes, 2d, M. D., and Charles E. Bellatty, for associate editors. The magazine is published bi-monthly at 1149 Little Building, Boston, Mass. The first issue contains 16 pages, large quarto. It is attractive in appearance and is printed on good paper. Photographs and charts add to the interest of the short instructive articles.

(R. F. H.)

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Health Centers: A Field for Red Cross Activity. *Washington, D. C.: American Red Cross.*

The American Red Cross has recently issued a twenty-page pamphlet entitled "Health Centers: A Field for Red Cross Activity." This pamphlet is the preliminary and general statement of a part of the peace-time program of the Red Cross which is concerned with public health. It is the plan of the Red Cross to offer its services in assisting the establishment of health centers in those communities where they are needed. This important step has not been taken with a view to perpetuate the Red Cross, but because the promotion of better health is deemed a national necessity, and its neglect an annual national disaster.

The demand for team-play in public health is stressed, and the health center is offered as the next step in the evolution of community welfare. It differs from the dispensary or clinic in that the health center accords importance to the preventive aspect rather than the curative. The health center acts as a clearing house for public health information and offers opportunity to coördinate all the public and private activities which exist in a community. It is suggested that here should be housed the city health officer, his laboratory, and that space should be provided for various clinics such as infant welfare, tuberculosis, venereal disease, mental hygiene, dental hygiene and industrial hygiene, together with an auditorium which could serve for a meeting place for conferences and lectures and gatherings of local medical societies.

The pamphlet particularly makes the point that the Red Cross has no desire to limit or substitute for public health administration. On the contrary, it is stated that all health work should eventually be under the jurisdiction of the public authorities. The position of the Red Cross is simply to supplement existing agencies and to coöperate in public health work in general. As Dr. Farrand has said: "Without in the slightest degree grasping or usurping the field of any other organization we can get behind these bodies and insert a new kind of cement, a new kind of binding material, that will hold them together so that they will find that they are forming one great forward movement for the welfare of the country."

In outlining how to establish a health center, the pamphlet remarks that no hard and fast rule can be set down, as local conditions must be considered. It is recommended that the Red Cross may: first, initiate a movement for a health center which shall be supported in whole or in part by public funds as an official activity; second, take the lead in coördinating all or some of the sound and well-conducted volunteer agencies; or third, failing either alternative, it may itself construct and operate a health center.

The public health officer of the community, backed up if necessary by the district or headquarters representative of a state health department, should be expected and encouraged to take the lead in bringing together the various officers in planning and developing a health center. If for any reason this is not now practicable, the voluntary health agencies of the community may well take the initiative for the coördination of the health work in the manner suggested. Every legitimate group working in the interests of public health should be invited to participate.

PUBLIC HEALTH NOTES

Abstracts by D. GREENBERG, M. P. HORWOOD and MAYO TOLMAN.

Botulism from Canned Asparagus.—On the occurrence of several cases of botulism following the eating of asparagus taken from jars and served cold as a salad, the authors have been able to isolate a strain of *B. botulinus*. A detailed description of the cultural, morphological, and pathogenic characteristics of this strain is given. The thermal death point of the organism was tested and it was noted that is optimum temperature was 37° C. Spores survive steaming under ten pounds pressure for fifteen minutes or a temperature of 100° C. for one hour. These results show that the organism is sufficiently resistant to account for its survival in canned food. The toxin, however, is destroyed at some point between 70° and 73° C. by heating for ten minutes.

As a result of a series of experiments with this organism, the authors' comment on the question of canned food is worthy of special note. Successful canning, so far as the danger from such strains as the Boise organism is involved, depends not so much on the method of work selected as on the rejection of infected material at the start. Dirty, wilted and partly rotted food, carries multitudes more of organisms into the canning process than fresh, sound, clean fruits and vegetables. Dirty tables, dirty jars and lids, sewage-polluted water and flies are sources of contamination which should be eliminated. The material should be processed according to the best experience available. Finally, it must be frankly recognized that an occasional jar, or series of jars may yet spoil because some factor escaped all these precautions. Such food should be destroyed, not salvaged, not mixed up in salads, mince meat or pie stock for human food. The toxin present may be destroyed by heating until jar, lid and rubber, as well as contents have actually reached the boiling point.

Typical spoiled cans are readily identified. Doubtful cases, however, occur frequently. A consumer unfamiliar with a particular product is frequently puzzled by its odor as it comes apparently sound from a can in good condition. Cooking, as recommended by Dickson, appears to be the practical method of destroying possible toxin in such materials; even this, however, leaves the spores viable. Feeding suspected food to domestic animals, without safeguards, is clearly undesirable. Unfortunately there are many people who undertake to salvage canned food which they know to be spoiled or in some stage of decomposition. The warning, therefore, is clearly, not to avoid canned food, but to avoid spoiled food canned or uncanned, but especially of canned.—Thom, C., Edmondson, R. B., and Giltner, L. T., *Jour. A. M. A.*, Sept. 20, 1919, 907. (*D. G.*)

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New Jersey Campaign of Publicity and Education in the Control of Venereal Diseases.—Working on the principle that in order to combat a disease effectively there must necessarily be wholesome and accurate publicity and education, the State Department of Health of New Jersey, in coöperation with the U. S. P. H. Service has been conducting such a campaign. During the first six months, the methods employed were confined almost entirely to the distribution of pamphlets, to lectures, and to the public exhibition of the motion pictures entitled "Fit to Fight" and the "End of the Road." Large paid advertisements had also been inserted occasionally in the leading newspapers in the state. More recently, the publicity has included huge, well painted billboard advertisements, street car advertisements and stereopticon slides in the moving picture theatres. There has apparently not been any serious adverse criticism to these methods of publicity. Billboard paintings have not only been erected in some of the larger cities, but some have also been placed along the road traversed by important railroads. Venereal disease clinics have also been established in some of the larger cities. As a result of this extensive and energetic campaign of publicity, the number of Wasserman tests and tests for gonococcus have increased considerably. This would indicate that more people are seeking competent medical advice and treatment today, than before the inauguration of the campaign. Not only has the number of specimens for diagnosis from the free clinic increased, but the rate of increase in the number of specimens submitted by private physcians has been even greater. This was particularly true in those communities where the publicity campaign was conducted vigorously. The number of cases of venereal disease that were reported were materially less than the number of examinations made. This is probably due to the fact that the state law requires physicians to report these diseases by name and that no provision is made to enforce the law. It is hoped that the publicity campaign and the clinics will be extended to other communities in the state in the near future.—S. H. Smith, Jr., *New Jersey Public Health News*, Sept., 1919. (*M. P. H.*)

Norway P. H. A.—Norway has formed its public health association in which there are five foundation planks, improvement of the individual hygiene, establishment of public baths in all towns and important places, housing improvement, hygienic nourishment and healthy field sport. Its name is, Folkehelseforeningen, and its address, Kristiania, Norway.

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Proper Classification of Venereal Disease.—The task of obtaining the right kind of publicity for syphilis and gonorrhea has been made immeasurably more difficult because of their designations as venereal diseases.

It is one of the peculiarities of the English language that two words derived from a single root may acquire opposite characteristics through usage.

From the root word Venus, Goddess of Love, are derived "venerate" and "venereal." The former is used to signify reverence or respect while the latter has been applied as a general term to designate a group of diseases and, because these diseases are often acquired through illicit sexual intercourse, odium has attached to it.

In justice to the thousands of blind babies, whose condition is due to gonorrheal infections of their parents, in fairness to the many persons who are innocently and accidentally infected, in consideration of the multitude of congenital syphilitic cases, these diseases, syphilis and gonorrhea, should be thought of, spoken of and written of as other diseases are. They should not be placed in a separate class and thus unduly penalize innocent victims.

The appelation "social diseases" is not only indefinite but incorrect. Syphilis and gonorrhea are unsocial in that they are not "adapted to society." No disease is "social," but if the term is applied to any it might just as appropriately be applied to many others: or they might with even more propriety be called "anti-social."

The various other terms which are in current use in this connection also are open to decided objections. "Blood diseases" might refer to lead poisoning, septicemia, puerperal fever, malaria or, in fact, any infectious disease which causes high temperature. "Loathsome diseases" is a weasel-worded term which might also describe any disorder from eczema to leprosy. As for "secret diseases," the very use of that word tells the story of past failures in locating and curing them. The unfortunate "secret" has sent unnumbered sufferers to the quack doctor or has caused them to allow their infections to develop unhindered rather than to confide in those agencies which are ready and willing to help them.

When our newspapers, magazines, doctors, teachers and the great public realize the necessity for a rational attitude regarding syphilis and gonorrhea, they will classify them with tuberculosis, yellow-fever, and certain other diseases which advancing science is rapidly driving into the realm of the have-beens.—Editorial, *Social Hygiene Bulletin*, Sept., 1919.

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The Future of the Tuberculosis Campaign.—Dr. D. R. Lyman, in his presidential address to the National Tuberculosis Association, points out the need of closer coöperation of the various tuberculosis agencies and organization with health authorities, local and state. The need of closer coöperation with the medical profession through the national, state and local medical societies, as well as through the individual physicians, was never so great as now, nor was the time ever so ripe to further this end. He urges that the principles of public health nursing should be as important a part of the curriculum in the nurses' training schools as surgical technique, and that the nurses be inspired to carry with them into every home the spirit of missionaries in the cause of public health. Our sanatoriums and hospitals present a splendid opportunity for the intensive training of the patients. A very important "line which should be connected with the switchboard of the tuberculosis association" is the industrial world,—large industrial corporations and the labor organizations. Both of these are vitally interested in all that concerns health. He strongly urges the adoption of universal military service for young men as they reach the age of eighteen. From the standpoint of national health such service will mean a chance for a complete physical study, and, if need be, corrective physical training. He very wisely points out that such proposed training should also include our women.—D. R. Lyman, *Amer. Rev. of Tuberculosis*, July, 1919, 257.

(*D. G.*)

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Much TB Testing in Virginia.—Virginia has a larger percentage of dairy animals which have been tested with tuberculin and found free from tuberculosis than any other State. The Old Dominion has 79 "accredited herds" on the list of the United States Department of Agriculture.

In the 12 months preceding March 1, 1919, a total of 22,571 cattle were tested in Virginia, under the coöperative plan, and 772 reacted to the test, a percentage of only 3.4. This is a slight decrease from the number of reactors located during the preceding year, during which 4.4 per cent of the cattle tested were found to be diseased. (*J. E. L.*)

STATE HEALTH NOTES—GENERAL

National.—Precise estimates of the cost of rearing the American child are made in the first section of a volume entitled "Standards of Child Welfare—A Report of the Children's Bureau Conference," now published by the Children's Bureau of the United States Department of Labor. Various authorities report the results of their inquiries in this field. Miss Florence Nesbitt, institute instructor in dietetics for the American Red Cross, states that in cities such as Chicago and Cleveland "it costs approximately $1,500 a year to buy the essentials for maintaining the average family of five—father, mother and three children—at what we might consider a normal standard." Miss Nesbitt indicates the conclusion that only a minority of those comprehended by her investigation have as much as this minimum income.

The raising of the age at which American children are permitted to enter industry, and a more stringent control of the conditions upon which young people are allowed to assume the industrial obligations of maturity, are urged in the second section of this volume.

The prohibition of all employment of children under sixteen, except during vacation periods; the establishment of higher age limits in certain occupations; the prohibition of all juvenile employment in dangerous trades; the establishment of physical and educational tests; and the handling of the entire problem of juvenile labor with greater consideration for the National Welfare are proposed.

The United States Public Health Service has taken up the matter of cancer and presents these facts with reference to it in a recent number of *Health News*:

"Cancer is unquestionably increasing throughout the world.

"At the beginning cancer is usually painless and difficult to detect.

"At its first small growth it can be safely and easily removed by a competent surgeon.

"Cancer is not a constitutional, or 'blood' disease.

"Cancer is not contagious.

"Cancer is, practically speaking, not hereditary.

"Every lump in the breast should be examined by a competent doctor.

"Persistent abnormal discharge or bleeding is suspicious.

"Sores, cracks, lacerations, lumps, and ulcers which do not heal, and warts, moles, or birthmarks which change in size, color, or appearance, may turn into cancer unless treated and cured.

"Probably 60 per cent of cancers of the rectum are first regarded as piles. Insist on a thorough medical examination.

"Continued irritation in some form is the usual cause of cancer. It rarely results from a sudden injury.

"A doctor who treats a suspicious symptom without making a thorough examination does not know his business."

The United States Public Health Service also calls attention to the need of registering the birth of the baby:

"Horses and cattle breeders owning 'blooded' stock do not fail to have their animals 'registered.' It adds to their value and is, therefore, justly regarded as highly desirable. Contrasting this attitude with that of many careless parents, the Service gives the following reasons why Baby's birth should be registered.

"1. To establish identity. 2. To prove nationality. 3. To prove legitimacy. 4. To show when the child has the right to enter school. 5. To show when the child has the right to seek employment under the child labor law. 6. To establish the right of inheritance to property. 7. To establish liability to military duty, as well as exemption therefrom. 8. To establish the right to vote. 9. To qualify to hold title to, and to buy or sell real estate. 10. To establish the right to hold public office. 11. To prove the age at which the marriage contract may be entered into. 12. To make possible statistical studies of health conditions."

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Florida.—The personnel of the Florida State Board of Health is the following:

State health officer, Ralph N. Greene, M. D.; assistant state health officer, William J. Buck, M. D.; chief of the Bureau of Vital Statistics, S. G. Thompson, M. D.; chief of the Bureau of Diagnostic Laboratories, B. L. Arms, M. D.; chief of the Bureau of Child Welfare, Grace Whitford, M. D.; director of the Bureau of Venereal Diseases, Lorin A. Greene, M. D.; chief of Bureau of Sanitary Engineering, Mr. G. W. Simons, Jr.

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Illinois.—Within the past few weeks clinical meetings devoted to tuberculosis have been held before thirty Illinois county medical societies. This is part of the tuberculosis program being carried out jointly by the State Department of Public Health and the Illinois Tuberculosis Association, whereby clinical meetings will be held in every county in the state at the same time utilizing these clinics for the expert examination of returned tubercular soldiers of whom there are now about nineteen hundred in the state.

The civic center of Freeport, in a three day drive, has raised a fund of $10,000 for the support of its crippled children's clinic and public welfare work.

This means that the children of Freeport and Stephenson County, who have been left in the wake of infantile paralysis as helpless cripples, will be restored to the use of their limbs and fitted for active service in life.

The schedule of the Division of Child Hygiene and Public Health Nursing, which has charge of these clinics for the month of November, embraced seventeen clinics in various parts of the state.

The established clinic list now includes the following cities: Springfield, Waukegan, Blue Island, Chicago Heights, Oak Park, Aurora, DeKalb, Freeport, Quincy, Kankakee, Danville, Monticello, Alton, East St. Louis and Rockford, with Bloomington, Jacksonville and Champaign knocking for admission. Dr. C. W. East, chief of the Division of Child Hygiene and Public Health Nursing, has just returned from Jacksonville where he held a conference with local health officers with a view of establishing a clinic. The other cities will be visited as soon as possible. The present corps of field workers, consisting of the chief, an assistant physician, and two public health nurses, will need reinforcing in view of the demands made upon it.

The Division of Engineering and Sanitation, State Department of Health, has placed its findings as to the conditions of sewerage, sewage disposition, city waste collection and disposal, street cleaning, and drainage of swampy areas at East St. Louis, before the War Civics Committee.

The state of Illinois has started savings accounts in thirty-six banks for the thirty-six prize winning babies at the Better Babies Conference held at the 1919 state fair. The idea is to set an early incentive to thrift as well as to pay the prizes awarded at the conference.

Jacksonville has voted a bond issue of $220,000, one half of which will be used to cancel outstanding indebtedness. The remainder will be used to build a new power and pumping plant, and to install a filtration plant which will meet the requirements of the State Department of Health.

Virden, the largest city in the state without a public water supply, and with a possible bonded indebtedness limited to $42,000, is endeavoring to install a water supply and sewage system at a cost of $130,000. The State Department of Health is aiding the proposition by sending a representative to that city to address the people on the manifest need for the improvements.

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New Mexico.—During the latter part of September a milk-borne typhoid fever epidemic at Albuquerque was investigated by Dr. George S. Luckett and Mr. Harold F. Gray of the department staff. The infection was found to be probably due to a bottler in the dairy. Emergency pasteurization and isolation of the bottler brought the outbreak under prompt control. During the early part of October Mr. H. F. Gray, chief engineer of the department, made an extended field investigation of water supplies and sewage disposal in eleven counties in the northeastern part of the state.

At the last meeting of the State Board of Health the following new divisions were authorized to be organized in the department of health when practicable: 1. Division of Child Hygiene. 2. Division of Laboratories. 3. Public Health Nursing.

Plans are now under way for the establishment of venereal disease clinics at Albuquerque and at Santa Fé, and probably several additional clinics will be established, with at least one in the northern, and one in the southern part of the state.

The department has been providing free virus for vaccination against smallpox for indigents throughout the state. As smallpox is practically endemic in New Mexico, special effort to enforce the vaccination law everywhere is being made. The Division of Public Health Education has been extremely active and a large quantity of educational material is being distributed regularly to the newspapers. A very complete plan of coördination of local semi-official agencies with the local health officers, for the control of possible recurrences of influenza, has been prepared and promulgated.

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New York.—"In spite of the increase in the number of the insane, New York state has not built a single new state hospital for the insane in over twenty years," said Governor Smith at the turning of the first sod for the new hospital at Utica recently. "The last state hospital which the state erected was that at Gowanda in 1898. At that time the thirteen hospitals for the insane housed 21,531 patients. Since then the insane population of the state has increased by more than 14,000. There are now, 35,580 patients in the state hospitals and they are crowded into quarters designed for only 29,687. In the absence of any new state hospitals it has not been possible by enlarging the existing institutions to anywhere nearly keep up with the demand for accommodations, so that the state hospitals are now overcrowded by 5,893 patients, or 21 per cent."

The governor also told of plans which are being prepared by the Hospital Development Commission for a state psychopathic hospital in New York City. This will be the research department of the state hospitals for scientific studies into the causes and treatment of insanity and it will also be used for the temporary care of the less serious cases of mental disorders, especially those of shorter duration. In this way, suitable care will be provided for many

patients nearer their homes, and there will be a distinct saving to the taxpayers in cutting down the number of long-term commitments to distant institutions. It is hoped that New York City will provide the state with a site for this much needed institution. The plans call for a 200-bed hospital.

✱

North Carolina.—The State Board of Health, Bureau of Sanitary Engineering and Inspection, announces the selection of nine men as sanitary inspectors, for the purpose of administering the state sanitary law which went into effect on October 1. The men appointed are as follows: L. A. Allen, High Point; H. M. Fowlkes, Rockingham; Claud Hussey, High Point; H. G. Blackwell, Wake Forest; T. G. Moseley, Raleigh; W. J. Steele, Salisbury; A. M. Surratt, Denton; L. G. Whitley, Elm City; G. E. Hapgood, Fall River, Mass.

The state has been districted and one of the above men will be placed in charge of each district of approximately ten counties each.

That the people are in earnest in their desire to meet the requirements of the State Sanitary Law could be no better illustrated than by the type of sanitary devices being so generally favored. A multitude of towns have decided that the best is none too good for them, and are, therefore, making immediate preparation for replacing all existing insanitary privies with modern sewerage. More than fifty towns in the state are known to have taken this action already, and many others are daily being added to the list.

✱

Ohio.—Classification of Ohio's 102 health districts into five grades, for the purpose of fixing the salary to be paid to the district health commissioner, has been made.

The grades were established by the State Civil Service Commission in compliance with the Hughes Act, which revises the state's local health administrative organization. Salaries will increase automatically after specified periods of efficient service.

Completion of an anti-trachoma campaign in Scioto County has been announced by the State Department of Health. Trachoma is a contagious eye disease which frequently causes blindness. It is said to be prevalent in many Ohio River and neighboring counties, and the health authorities plan to carry the campaign into other localities soon.

In the course of the Scioto County work, 10,577 school children had eye examinations—about evenly divided between Portsmouth city schools and the rural districts. Of these, 179 were found to have trachoma. Free treatment was supplied to needy cases and many cures were effected. Five-sixths of the cases were found in rural schools.

The state health authorities will conduct a series of trachoma campaigns in counties where the disease is prevalent. The United States Public Health Service is coöperating with the state authorities. The work in each county will include a trachoma survey of the schools and the establishment of a free clinic.

Diphtheria and scarlet fever, now on the increase in Ohio, have been subjects of a warning issued by the State Department of Health. Precautions by parents, physicians, school authorities and health officials were advised.

Diphtheria cases reported in September totaled 655 and scarlet fever, 423. October reports, not yet compiled, will run higher. Scarlet fever is more prevalent than in several preceding autumns.

Among cities and other localities reporting diphtheria are: Lima, Cincinnati, Columbus, Dayton, Dover, Youngstown, Cleveland, Columbus Grove, Forest, and approximately seventy other scattered local health districts with a few cases each. Leading districts in scarlet fever prevalence are: Lima, Cincinnati, Dayton, Columbus, Akron, Sebring, Youngstown, Nelsonville, Jackson, Scioto County, Darke County, London, Fostoria, Bucyrus and Lorain.

✱

Utah.—Dr. Hardie Lynch has recently been appointed health supervisor for the schools of Salt Lake City. The health work in the Salt Lake City Schools is undertaken as a joint responsibility between the City Board of Health and the Board of Education. Dr. Lynch, while assuming responsibility for the special work in the schools, is appointed also as assistant to Dr. Paul, the city health commissioner.

The program of health education officially adopted for the schools of Utah covers the following six phases:

Provision for the physical examination and medical inspection of all school children at least once a year; a system of "follow-up," for the purpose of correcting the defects discovered by the medical inspection; the inspection of school buildings and grounds and the maintenance of satisfactory sanitary and hygienic conditions; the protection of the school population from contagious diseases by daily inspection and exclusion of incipient cases; careful instruction in personal, household, and public hygiene; and systematic physical training as a means of promoting normal physical growth.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Francis H. Slack, M. D., and Mr. James M. Strang.

Laboratory Experiments with a New Organic Arsonic Compound.—This substance of N-phenylglycineamide-p-arsonic acid is one which readily lends itself to almost any method of administration, and can be given to animals in very large doses. Repeated administration of these large doses at short intervals is possible and there is no cumulative action, in fact the animal develops a tolerance allowing an increase of dosage to a point well above that which is fatal to normal animals. It is an agent of marked therapeutic effect in the treatment of experimental trypanosomiasis of mice, rats and guinea pigs. A series of experiments in the treatment of experimental trypanosomiasis of rabbits gave equally favorable results, these latter experiments being of especial value since experimental trypanosomiasis in rabbits presents many points of similarity with the naturally acquired disease in human beings. Laboratory animals infected with spirochetes of the *recurrens* group and with *Treponema pallidum* were also treated. The infections were ameliorated, and although the organisms were not immediately destroyed, the treatment produced beneficial results comparable to those obtained by more powerful spirochetecidal agents. Often the *spirochahætæ* are not destroyed by N-phenylglycineamide-p-arsonic acid, but their capacity for stimulating reaction in the tissues is destroyed, or else the reactivity of the tissues is lessened. At any rate, living spirochætes may remain in the tissues for considerable periods of time without giving rise to the usual tissues reaction which characterizes these infections.—Wade H. Brown and Louise Pearce, *Jour. Exper. Med.*, Nov., 1919.

✻

"Delayed Negative" Wassermann Reaction.—Attention is called to the desirability of the examination of the test-tubes at 15-minute intervals after the addition of the hemolytic system for detection of those cases in which the reaction is delayed a half hour or longer, but eventually shows as negative. Such cases comprise about 1 per cent of all tests. In 1793 in tests by the author, there were 18 "delayed negatives," and investigation showed that 8 of these had a positive history of luetic infection, 6 were questionable, all of whom denied syphilitic infection, but as each of these was suffering from, or had a history of gonorrheal infection, and as there was no question as to frequent exposures, they were regarded as probably syphilitic. Of the remaining 4, one was an acute alcoholic, and on this account a positive reaction may have been masked. With 44 per cent of those showing a "delayed negative" reaction giving a definite history of syphilitic infection, 335 probably syphilitic, and but 23 per cent probably negative, this finding seems of sufficient significance to warrant examination of the tubes at 15-minute intervals after addition of the hemolytic system rather than waiting for a full hour's incubation.—Guthrie McConnell, *Jour. Lab. and Clin. Med.*, Oct., 1919.

✻

Transmission of Influenza.—A series of experiments throwing light on the problem of the etiology of influenza were conducted at the Yale Army Laboratory School. A feature of the tests was the use of volunteer subjects for direct experimentation. Applications of suspensions of *B. influenzæ* to the nares and nasopharynx gave negative results; in but one case was there even a transient abnormality of temperature. In one instance, the culture employed was a filtrate from the lung of a victim of typical influenza, and in another, the culture was freshly isolated from a fatally infected human. The presence of *B. influenzæ* does not alter the normal flora of the region. When experimentally inoculated, the bacilli disappear from the nares within 24 to 72 hours, but only after two weeks or more, from the nasopharynx. In routine examination of nasopharyngeal secretions from suspected cases, the use of plain, blood, chocolate and oleatum soap agar is recommended, the blood agar being especially helpful in showing the presence of streptococci.—Wahl, White & Lyall, *Jour. Inf. Dis.*, 1919, 419.

✻

Biologic Classification of Hemolytic Streptococci.—Following the example of the workers on the pneumonococci and meningococci, Havens applied serological methods to the classification of hemolytic streptococci. A careful investigation of 292 strains obtained from a variety of sources showed that there were three main groups comprising 93 per cent of all the cultures; 47 per cent were of the first group, 19 per cent of the second, 27 per cent of the third, the remaining 7 per cent forming a group of indefinite composition. Group sera were found to react specifically with all members of the same group, and not with members of any other.—Havens, *Jour. Inf. Dis.*, 1919, 25, 315.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh, P. M. Holmes, and E. B. Starr.

Public Health Nursing and Industrial Hygiene.—Public health nursing is the right arm of preventive medicine. Chicago spent $165,461.25 on its Visiting Nurse Association in 1918. It has taken some time to efface the impression that visiting nurses are charity workers. The visiting nurse instructs in the elements of public health. She must be something more than the graduate of a school of nursing, she requires further training, which training is not yet standardized, especially in regard to nurses in industry. Here she is of value giving first aid treatments, but this is the smallest part of her work in any factory. She must win the confidence of the employees when her utility and functions are almost unlimited. She acts as housekeeper, sanitary inspector and health advisor in the plant, particularly in directing afflicted workers to seek proper treatment. She, best of all, can connect the industry with the home.—Mary Beard, *Jour. of Ind. Hyg.*, Aug., 1919, pp. 194–200. (*E. R. H.*)

*

Health of Soft Coal Miners.—In the report of the Health Insurance Commission of the State of Illinois, pages 376–402, the writer (E. R. Hayhurst) gives the fullest of any of his statements so far published, upon coal miners. The field investigations in Illinois and Ohio covered the respective coal areas and were made in conjunction with the respective state departments of health and the state health insurance commissions. The summer of 1918 was devoted to the field work. Traveling was done mostly by automobile. Fifty-six mines in Illinois were visited, employing 15,809 of the 90,000 workmen so engaged. At the same time fifty-three physicians in mining towns were personally interviewed in a uniform manner. The working conditions of soft coal miners are summarized as are also the health hazards peculiar to their occupations. Housing conditions and local health administration are reported upon principally by Paul L. Skoog. The most interesting features probably are types and extent of sickness which are summarized under "rare," "less frequent than usual," "usual infrequency," and those "with occupation-earmark" (rheumatic, "asthmatic" and alcoholic afflictions). A careful study was made of the mortality statistics covering 5,428 deaths in six years. The figures were compiled from the carefully kept records of the miners' union insurance bureau, Springfield, Ill. Tables show the chief causes of death and compare them with similar figures of the United States Census. One table shows that where death due to violence (36.8 per cent are excluded, the actual deaths) due to tuberculosis are nearly the same as those for the working population at large (14.6 per cent *vs.* 16.6 per cent). The death rate tendencies are also analyzed. The latter part of the report discusses how miners cope with sickness and death hazards, describes the present community medical facilities and gives a general summary. Health insurance schemes were found already existent among the miners. Quackery also flourishes. "There is large room for improvement. To a great extent it involves education in ideals. . . . Stress should certainly be laid on the application of means to prevent sickness, as well as means to cope with sickness that exists." The Health Insurance Commission's Report is procurable from Louis L. Emmerson, Secretary of State, Springfield, Ill. (*E. R. H.*)

*

Factory Inspection and Factory Inspectors.—The purpose of labor legislation is the protection of the working population. The real protection depends solely upon the laws which are enforced. Non-enforcement breeds discontent and fosters anarchy. England began factory legislation in 1802. France began inspection in 1874. Massachusetts in 1886. "The most dangerous unguarded machinery I know is the machinery of factory inspection in the United States, exposed to a most pernicious political influence and to the parsimony of legislators. . . ." Workmen know the incompetency of the average factory inspector and his absence of zeal for his work. In contrast, factory inspection in Europe is a profession and a life work. Inspectors have a scientific education and technical training while superiors are promoted from the ranks. Detective inspection may be performed by ignorant and inexperienced men. Not so with preventive inspection. The perfection in the English, German, Austrian and Belgian systems is described. The low pay offered the American factory inspector is a chief fault; lack of tenure in office another. The qualifications, selection and training of factory inspectors is next given in detail. Personality plays a most important rôle. A special course for the training of factory inspectors in high schools, colleges and technical schools is urged.—George M. Price, *Jour. of Ind. Hyg.*, Aug., 1919, pp. 165–176. (*E. R. H.*)

Carbon Monoxide Gangrene.—Briggs of Boston reports an interesting instance of gangrene of the hands and feet due to carbon monoxide poisoning. Three brothers were in a motor boat on a fishing trip. The engine exhaust pipe had been so adjusted in the process of repair, that the fumes were exhausted into the small cabin. One of the brothers was found dead and another unconscious by the third brother who had remained outside the cabin. The second brother who recovered consciousness was treated at a hospital for second degree burns on the backs of hands and feet which were covered with large tense blebs. Instead of the condition improving gangrene developed and thirty-seven days after the accident, amputation of three fingers of the right hand and four on the left hand were performed. The necrotic areas on the feet sloughed and healed by granulation. Two similar cases are reported from literature by the author.—J. Emmons Briggs, *Jour. A. M. A.*, Aug. 30, 1919, pp. 678–697. (*P. M. H.*)

*

Mustard Gas.—In discussing the toxicity and treatment of mustard gas effects, Marshall points out that (1) the rapid penetration of the substance into the cell is due to its high liquid solubility; (2) the hydrolysis by the water in the cell forms hydrochloric acid and dehydroxyethysulphid, and (3) the hydrochloric acid so formed does injury to some part of the cell or cell mechanism. The gas is very toxic; one part in 14,000 of air will kill an animal in five minutes. These figures will probably apply to man as there is no wide species variation when applied to rabbits, guinea pigs, mice and monkeys. The ideal treatment for mustard gas poisoning would be the use of some non-toxic substance that would quickly penetrate the cell and neutralize the hydrochloric acid. No such agent has been discovered. Tests as to individual susceptibility were made and it was found that whites are less resistant than negroes; some persons are 600 times as susceptible as others; 2 to 3 per cent of white men are hypersensitive; 20 to 40 per cent are resistant.—E. K. Marshall, *Jour. A. M. A.*, Aug. 30, 1919. (*P. M. H.*)

*

Illinois' Health Commission Reports.—The commission created by legislative enactment in 1917 has issued a 647 page report in book form dealing with the extent, causes, cost and results of sickness among wage-earners and their families in the state of Illinois. Majority and minority reports are included. The former does not feel that the findings justify compulsory health insurance; the latter concludes that the findings show definite evidence of the need for compulsory health insurance. The majority report estimates that 20 per cent of all wage-earners lose more than seven days per year through sickness or non-industrial accidents with an average of 27 to 29 days per worker disabled. The cost of sickness is estimated at $57,000,000 per year for wage-earners alone and for wage-earners and families at $86,000,000 annually. Sickness figured as a cause or accompanying condition in from one-third to one-half of all cases requesting charity. Practically one-fourth of dependency cases due to sickness were from tuberculosis and other chronic conditions. The majority report also considers the venereal problem, tuberculosis, hospital facilities, infant welfare, maternity care, health legislation, public health nursing, etc. The report is an excellent one and interesting from many angles. It should prove of value to physicians, legislators, sociologists, etc. Procurable from Secretary of State, Springfield, Ill., 1919. (*P. M. H.*)

*

Manganese Poisoning.—The commercial uses of manganese are many, but published instances of poisoning are rare. The authors give a historical summary beginning with Couper in 1837. Typical case histories are abstracted. Fifteen foreign cases are on record, the exposure being due to manganese dioxide. Casamajor's cases in New Jersey, at first thought to be due to work in a magnetic field, are mentioned. Breathing the dust of the ores is the source. The authors think too much stress has been laid on eating in dust-free environment. The emphasis should be placed on the many hours of work in the dusty environment. The symptoms of the disease are very definite: langour and sleepiness, mask-like faces, monotonous voice, twitchings, cramps, clonus, retropulsion and propulsion, a peculiar slapping gait, laughter, less frequently crying. There are no life-shortening degenerations. Treatment is preventive and consists in dust removal and physical examinations aimed especially at intercepting the susceptible individuals.—Edsall, Wilber, and C. K. Drinker, *Jour. of Ind. Hyg.*, Aug., 1919, pp. 183–193. (*E. R. H.*)

*

Irritating Gases.—The chronic or residual lesions following the inhalation of the poisonous gases used in war times are of decided importance. The escharotic action of mustard gas, chlorine, superpalite, etc., causes an inflammatory edema and results in a cellular exudate which may be followed by organizations and fibroses causing obliteration or dilatation of the smaller air passages. The author advises grade respiratory exercises as a measure to prevent scar formation in the smaller divisions of the bronchi.—M. C. Winternitz, *Jour. A. M. A.*, Aug. 30, 1919, pp. 689–691. (*P. M. H.*)

(*Continued on Page XXV, Advertising Section*)

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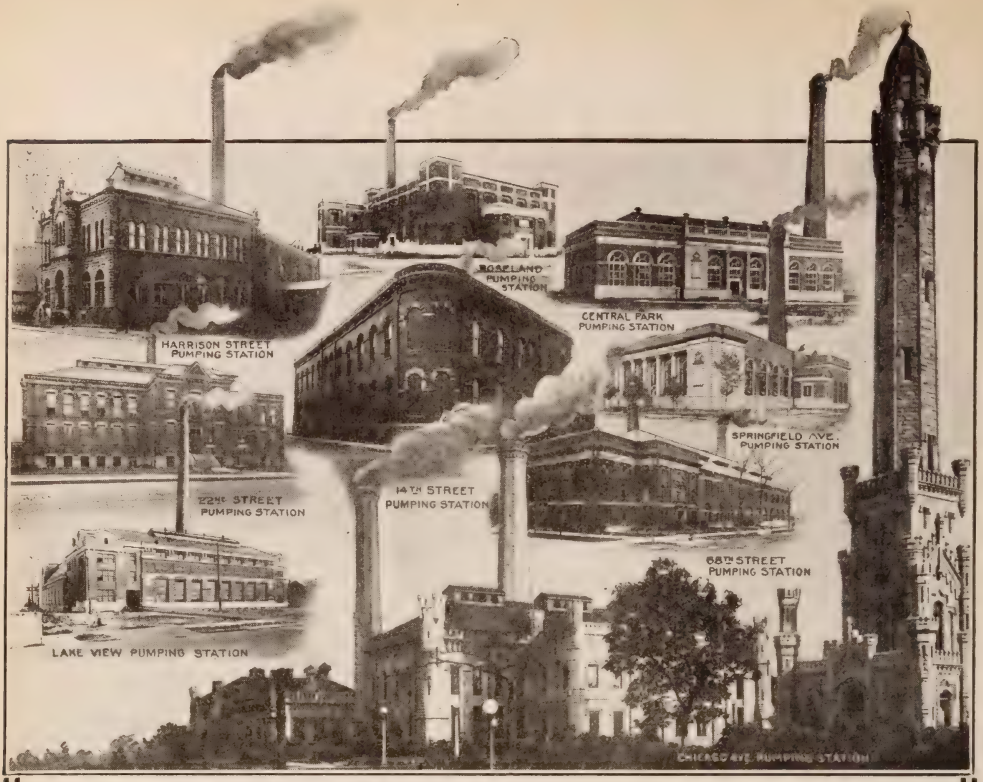
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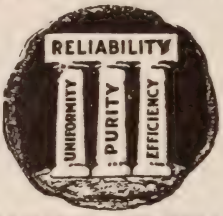
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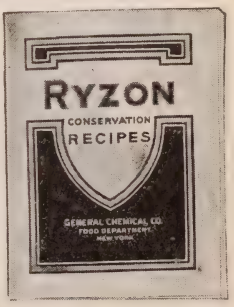
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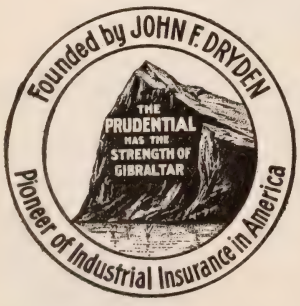
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Incorporated Under the Laws of the State of New Jersey

HIRING and FIRING

A Booklet Issued by the Industrial Service Bureau, Metropolitan Life Insurance Company

THIS statement of the problems involved in securing and selecting an adequate number of employes has been prepared by LEE K. FRANKEL, PH.D., Third Vice-President, and ALEXANDER FLEISHER, PH.D., Supervisor, Welfare Division, with the co-operation of LAURA S. SEYMOUR.

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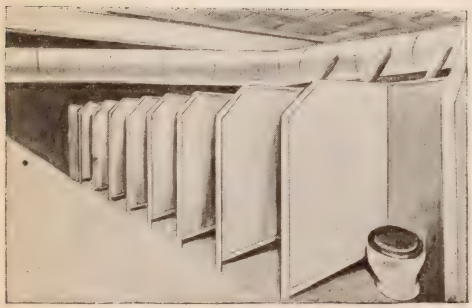
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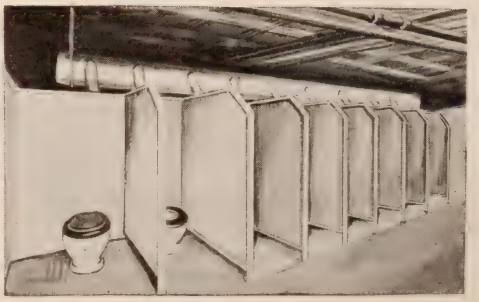
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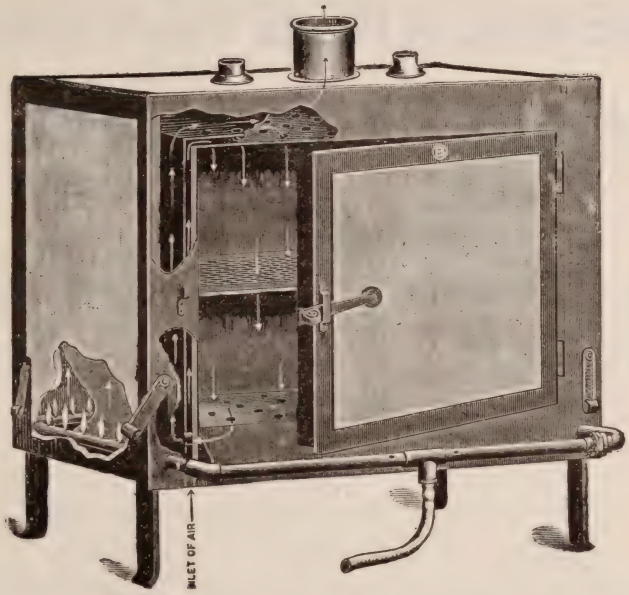
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It is needed in every Bacteriological Laboratory for dry sterilization of apparatus. Prices, etc., on application.

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A picture tells more at a glance than a hundred words of narrative, and its message is remembered far longer.

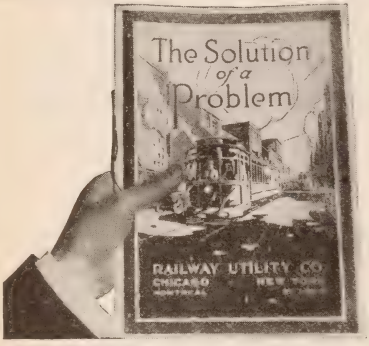
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Public Health Officials

will find in this booklet much of value to aid them in solving car ventilating and heating problems.

The matter of fuel saving is now of vital import. The above booklet shows how one electric railway is saving thousands of tons of coal annually. Write for a copy.

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Mfrs. of Ventilators and Thermostatic Heat Regulators for street cars

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Public Health Clippings.

Public Health is the foundation upon which rests the happiness of the people and the welfare of the state.—*Disraeli.*

*

Seeking a Place in the Sun.—"These apartments are too dark for what we want."

"What do you want?"

"We want to do light housekeeping."—*San Francisco Chronicle.*

*

November's Past But This Still Goes.

November is the month to buy
Overcoats and coal supply.
Very careful we should be,
Exposing our light hosiery.
Many people catch la grippe
Because they do not care a "rip."
And lo, take care, pneu-mo-nia
Rushes in and says, "Ha! Ha!"

—*Exchange.*

*

The slogan of every health officer should be found in the old adage, "An ounce of prevention is worth a pound of cure."

*

Birth Registration.

We've registered our incomes,
Just as the law demands;
We've registered our autos,
Our houses and our lands;
We've registered our motor boats,
At Uncle Samuel's call—
Then why not register the most
Important thing of all?

We've registered our incomes,
Our horses and our mules;
We've listed all our property
According to the rules;
We've counted all our country's wealth,
Our cattle, wheat and corn—
But no one knows how many
Future citizens are born.

Now since we've inventoried
'Most everything on earth,
Why don't we take some notice
Of a Human Being's birth?
And while we count each side of beef
And every ton of coal,
Why don't we count that priceless thing,
A new born Human Soul?

—*N. C. W A.*

(*Continued on Page XXI*)

Analysis

Of Quaker Oats

Water - - - -	7.7%
Protein - - - -	16.7%
Carbohydrates -	66.2%
Fat - - - - -	7.3%
Ash - - - - -	2.1%

Calories Per Pound, 1810

Thus Quaker Oats is almost the perfect food. It supplies the needed elements in almost the ideal proportions.

In energy value, pound for pound, it is twice round steak and nearly three times eggs.

Its cost is five cents per 1,000 calories. Meat, eggs, fish and fowl will average more than ten times that.

These are facts which women should know in these high-cost days. Ten people can breakfast on Quaker Oats at the cost of feeding one on meat.

Quaker Oats

This brand is flaked from queen oats only—just the big, rich, flavory grains. We get but ten pounds from a bushel.

This extra flavor without extra price has won millions to Quaker Oats.

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Chicago

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Has Never Before Been Advertised

VITRIFIED Salt-Glazed Sanitary Sewer Pipe was never before advertised in the American Journal of Public Health—a great oversight on our part. Engineers know that Vitrified Salt-Glazed Sanitary Clay Sewer Pipe makes the most dependable sewer, but we have never told the doctors or the public health officials about it.

Since you know the value of sanitary glazed porcelain (clay) in the operating room and laboratory, in the bath room and in the kitchen, you will appreciate what Vitrified Salt-Glazed Clay Sewer Pipe means in the sewer.

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There are no "Ifs"

CLAY PRODUCTS ASSOCIATION

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PUBLIC HEALTH CLIPPINGS—*Continued.*

Conservation of Vision.—Ohio, which took the lead in forming some classes in the public schools for children with defective vision, still leads with classes in seven cities. Massachusetts and New York each have three cities that have inaugurated such classes. Other states are following the good example thus set.—*M. T.*

✻

We are Responsible.—"Does God fix the death-rate? Once men were taught so, and death was regarded as an act of Divine Providence, often inscrutable. We are now coming to look on infant mortality as evidence of human weakness, ignorance and cupidity. We believe that Providence works through human agencies, and that in this field, as in others, we reap what we sow—no more and no less."—*Holt.*

✻

Why call the fire department when you see a little smoke in the basement and neglect to call a doctor when your child is burning up with a fever?

✻

The Right Sequence.—A Denver doctor says that taking a sip of lemon juice before a kiss will render the germs harmless. First the lemon, then the sugar, eh?—*Boston Transcript.*

Quarantined Homes

Require Destructible Containers for Milk and Cream Delivery



The country's foremost health authorities sanction the use of containers which may be destroyed easily after a single delivery.

Absolute sterility, an air-tight seal, light weight and compactness are the characteristics which distinguish

Weis-Fibre Containers
DIRT IN PARAFFINE USED ONLY ONCE

Their square form permits easy handling, economy in refrigeration and wagon space.

Made of pure spruce wood fibre; containers immersed (submerged) in hot refined paraffine wax. Thus the entire surface inside and outside, all edges and corners are completely covered with neutral, impervious paraffine wax.

Contents may be poured easily, no danger of leakage or damage if handled with ordinary care.

Why not get a few samples to show your local dairymen who are supplying Quarantined Homes? A post card request will bring samples and leaflet.

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When breast milk fails in quantity or nourishment, Eagle Brand is peculiarly appropriate for use in the supplemental feeding of infants.

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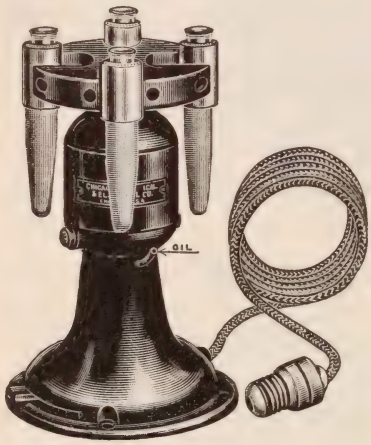
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A clear, concise and well-written book by an authority and covers just the information for the tuberculous patient or the person who may have or thinks he has tuberculosis. It answers the questions asked by tuberculous patients and others. Just the book for the health officer.

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AMERICAN JOURNAL OF PUBLIC HEALTH

(Advertising Talk #12)



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Now these flavory flakes hide 25 per cent of flake bran.

There was never a better way to coax people to eat bran. Please try it.

Pettijohn's

Rolled Wheat—25% Bran

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Also Pettijohn's Flour—75 per cent fine Government Standard flour, 25 per cent bran. Use like Graham flour in any recipe.

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The high percentage of deaths from infection by the *streptococcus hemolyticus* complicating pneumonia, warrants our calling attention to the importance of

1st. IMMUNIZATION

Preventing infection with an appropriate Serobacterin or Bacterin. Reports from physicians in charge of medical work connected with industrial institutions, boards of health, and general practitioners, abundantly justify the prophylactic use of a suitable Serobacterin or Bacterin containing the organisms isolated from the present epidemic, in preventing influenza and pneumonia.

The Conference held at the British War Office, October 14, 1918, Col. Sir Wm. Leishman, Chairman, reported in favor of immunization and treatment of infections with suitable bacterins.—See British Med. Jour., Oct. 26, 1918, p. 470.

2d. TREATMENT

In streptococcus pneumonia the early use of Antistreptococcic Serum Polyvalent **administered intravenously, in full doses (100 to 200 mils), repeated every 8 to 12 hours as indicated.** This serum contains the antibodies against the different streptococci isolated from the present epidemic. Especial reference is made to the *streptococcus hemolyticus.*

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In mixed infections the conjoint use of both sera is indicated.

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H. K. Mulford Company

Manufacturing and Biological Chemists

Philadelphia, U. S. A.

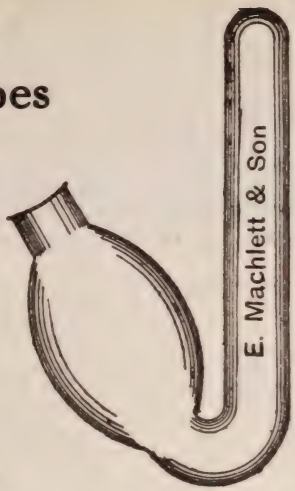
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Improved Type

Straight Sided
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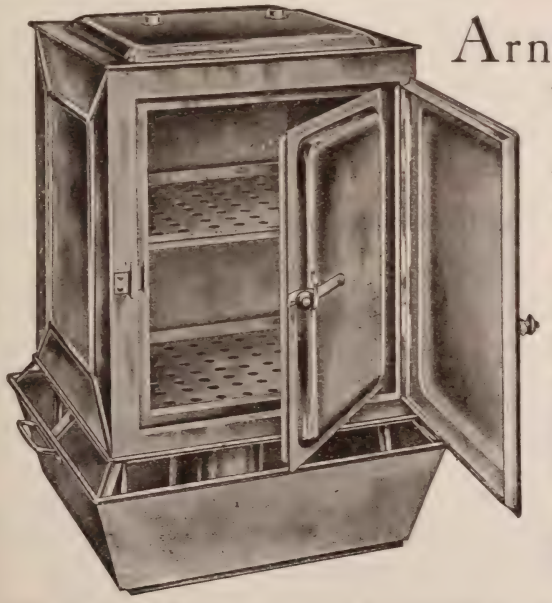
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(*Illustrated*)

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Malnutrition, Marasmus or Atrophy

Mellin's Food
4 level tablespoonfuls
Skimmed Milk
8 fluidounces . . .
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8 fluidounces . .

Analysis:

Fat	.49
Protein . . .	2.28
Carbohydrates. .	6.59
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The principal carbohydrate in Mellin's Food is maltose, which seems to be particularly well adapted in the feeding of poorly nourished infants. Marked benefit may be expected by beginning with the above formula and gradually increasing the Mellin's Food until a gain in weight is observed. Relatively large amounts of Mellin's Food may be given, as maltose is immediately available nutrition. The limit of assimilation for maltose is much higher than other sugars, and the reason for increasing this energy-giving carbohydrate is the minimum amount of fat in the diet made necessary from the well-known inability of marasmic infants to digest enough fat to satisfy their nutritive needs.

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is simply a rapid, convenient, economical method of liberating any required amount of formaldehyde gas

Since all methods of formaldehyde disinfection rest primarily upon the same principle—that of the liberation of a certain amount of formaldehyde gas in a given space—it follows that the practical problem confronting any municipal health department, simply stated, is, "How can we generate the required amount of gas in the most rapid, efficient, convenient, and economical manner?"

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The DePree Chemical Company

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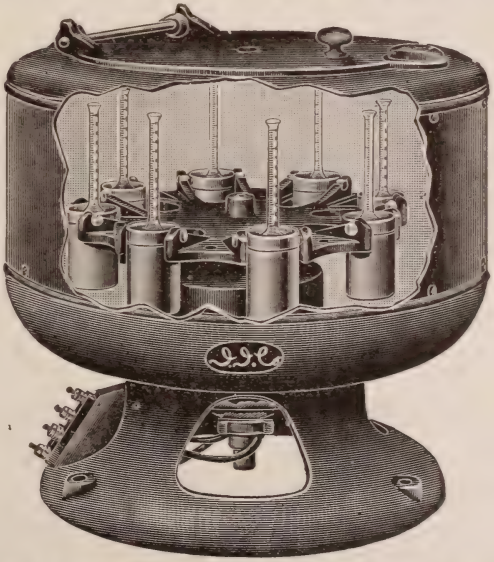
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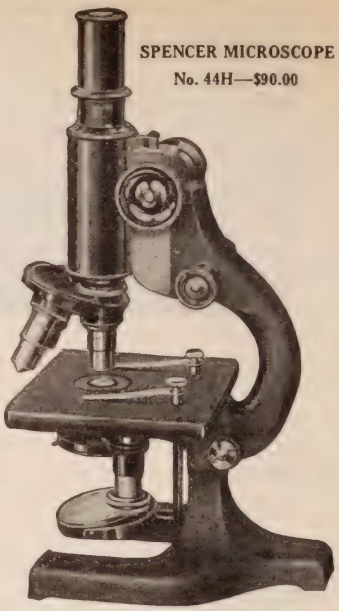
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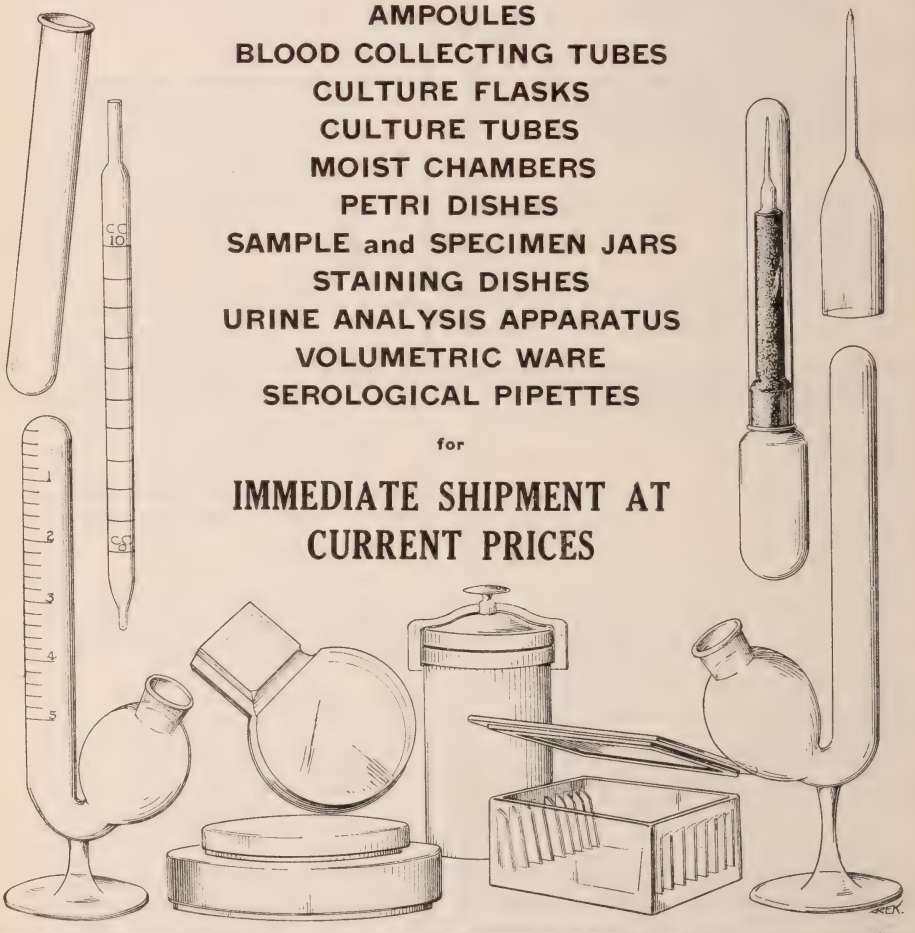
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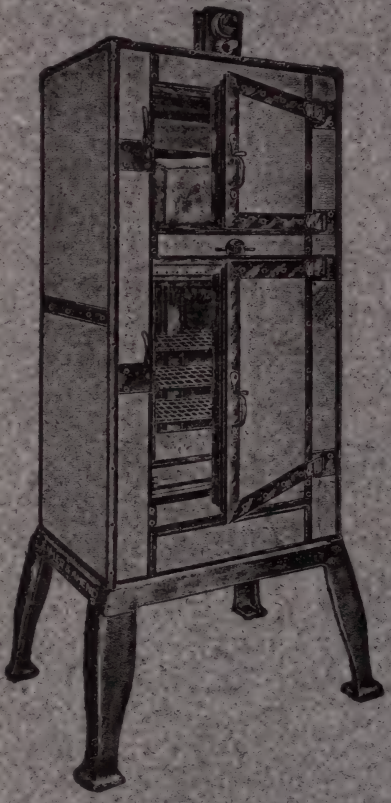
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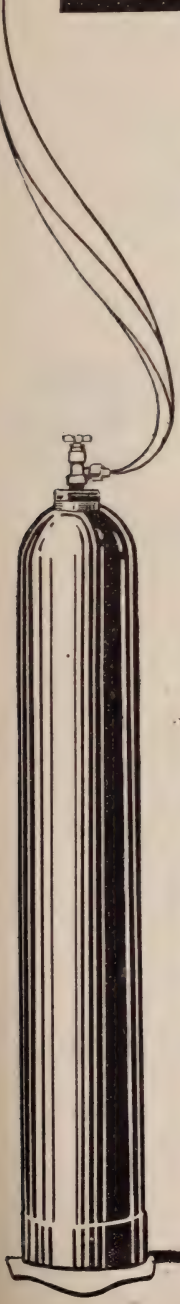
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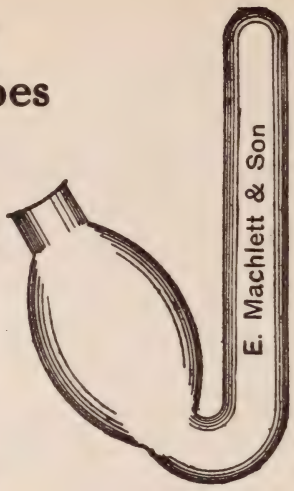
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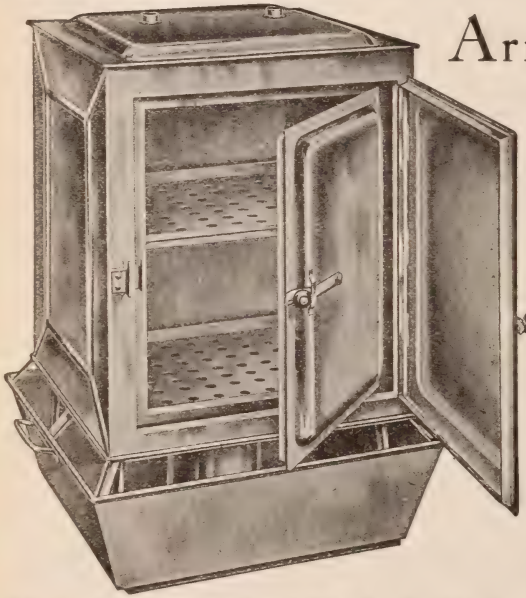
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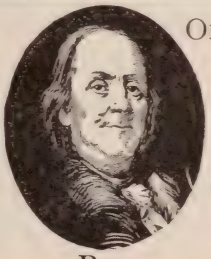
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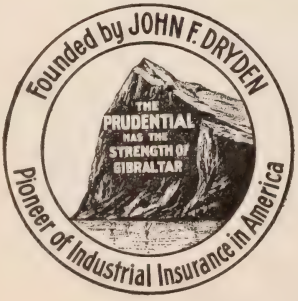
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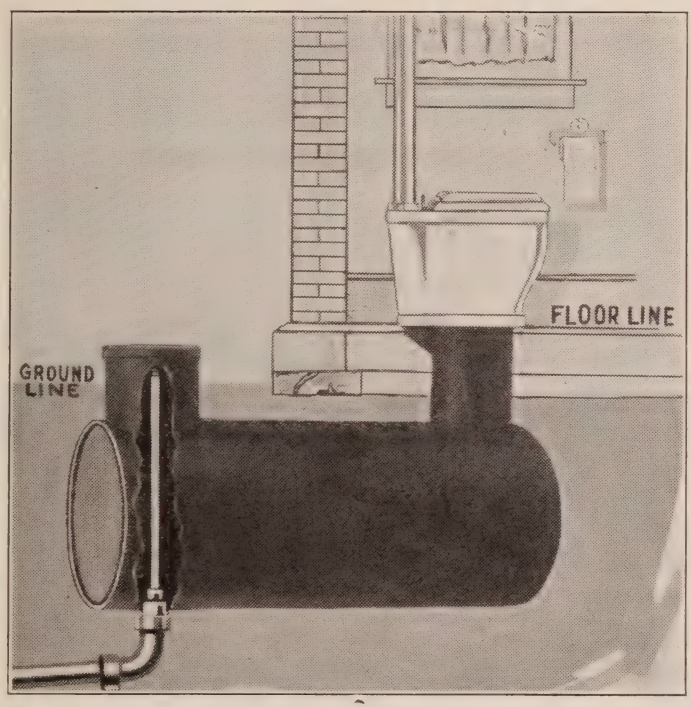
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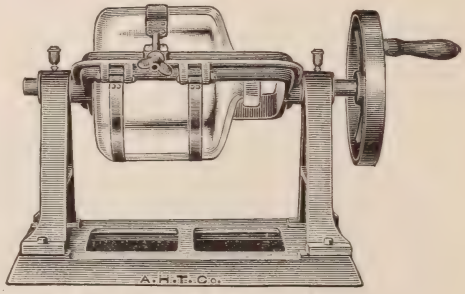
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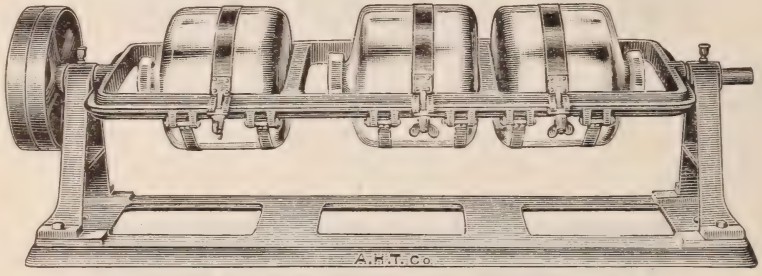
See Whitmore, Fennel and Petersen, "An Experimental Investigation of Lipovaccines," The Journal of the American Medical Association, Feb. 16, 1918, Vol. 70, pp. 427-431, Whitmore and Fennel, Mar. 30, 1918, Vol. 70, pp. 902-904, and Whitmore, "Lipovaccines with Special Reference to Public Health Work" read at the December, 1914, meeting of the American Public Health Association.



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Public Health Clippings.

Don't worry! To worry about the past is to dig up a grave; let the corpse lie. To worry about the future is to dig your own grave; let the undertaker attend to that. The present is the servant of your will.—*Haddock.*

*

Warm Heart, Cold Hands.—"He married a cool million, I understand."

"Yes, but his wife seems afraid to let him get his fingers chilled."—*Boston Transcript.*

*

Buffalo Healthgrams.—Elbow grease is one of the best disinfectants—it is cheapest, safest and within the reach of everybody.

Contagion is an offspring of dirt, a relative of disease, and a chum of death.

Nearly all contagious diseases leave their mark on the heart, lungs, kidneys or other organs.

Contagion is not a necessary evil. It is preventable, and its wilful spread is a crime.

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If people ventilated their homes like they ventilate their opinions, Buffalo would have a mighty low death-rate.

Some people sterilize an article by boiling, then they handle it with their hands—but they did not boil their hands.

*

Common Mixtures.

"I gave him some serum," said Doctor G. P.,
"To prevent him from catching the flu,"
"Don't you mean a vaccine?" I then asked him.
"Why, sure," he said, "surely I do."
That's one slip we make that disturbs me,
It surely annoys me to hear 'em,
We use the word serum for vaccine
And vaccine when we mean serum.

—*Jour. A. M. S.*

*

Mother and Teacher.—A child's mother is his first teacher, and his teacher is often a second mother to him. These two must coöperate in his behalf. The home and the school have their separate responsibilities toward the child. If either fails, both suffer, and the child, in either case, is the victim.—*Buffalo Sanitary Bulletin.*

*

For Hygienic Reasons.—Teacher (reading)—"Water, water everywhere and not a drop to drink." Why was that so, Bobby?

Bobby—Because there were no individual drinking cups.—*Boston Transcript.*

(*Continued on Page XXI*)



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PUBLIC HEALTH CLIPPINGS—*Continued*

Get the Right Kind of Bubbler.—Observations upon the use of the sanitary or bubbling drinking fountains show that they are not always sanitary, and for reasons that are difficult to overcome by any sort of mechanical device. Who has not observed the small boy amusing himself by mouthing the little globular water exit in a manner that can not fail to implant therein the germs of diphtheria if he should happen to be a carrier of that infection? The truth of the matter is that most forms of the bubbling fountain are almost as efficient in the exchange of mouth secretion as is the common drinking cup. The hygienically wise will always see to it that the surfaces are well washed before drinking and then they will avoid touching the lips to anything but the top of the water stream. It is extremely probable that it will become necessary to adopt regulations governing the form of fountain permissible for public use.—*Bulletin, California Board of Health.*

No Liar.—"Blank says he never paid a doctor's bill in his life."

"Exceptionally healthy, eh?"

"No; exceptionally poor pay."—*Boston Transcript.*

Health and Disease.—The greatest asset of our nation is health. The greatest liability is disease. We should bring our books to a balance. Every day be able to charge off. Remember we are not as healthy as we should be, or may be. Disease is rampant and our hope is through the intelligent care of public health. We are gaining knowledge; this knowledge brings new laws and better results. We inherit both health and disease. If our public health had been properly safeguarded through the past generations from the thousand and one bad sources of contamination, disease would be practically unknown. Let us then instill in the youth of our land the advantages of good health for the protection of future generations.—*Michigan Public Health.*

Aged Patriot Prescribes a Sure Cure for Flu.—The following "sure cure" was mailed to a division director of Civilian Relief, by a patriotic old lady:

"Take 4 pig hoofs the toe Nail Part and Put them in the oven and Bake them until they are a very dark brown then Put them in steu Pan and add 1 Pint of Boiling hot water and give 30 minuts dose half coffee Cup with 1 table spoon of good whiskey night and morning for 2 days then any kind of good Fisic.

"A colord women that has tried this receipt."—*Lota Division News.*



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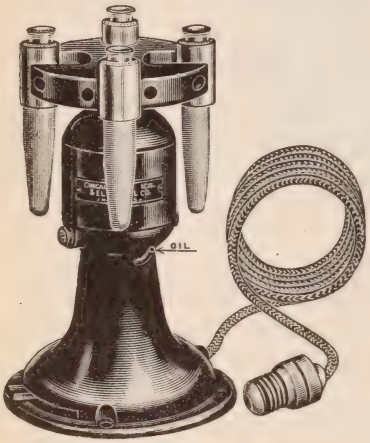
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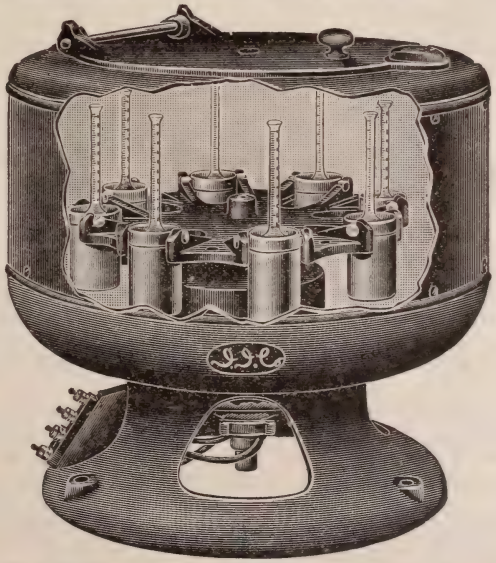
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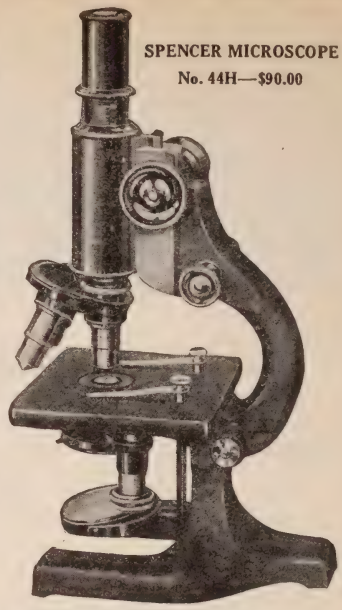
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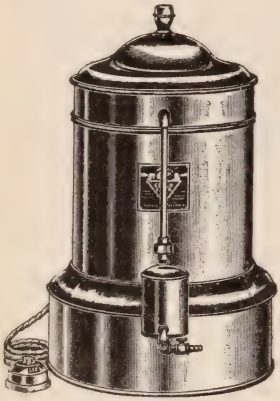
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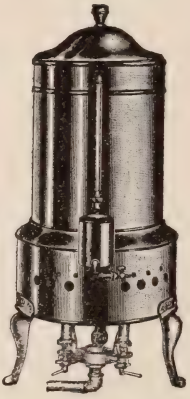
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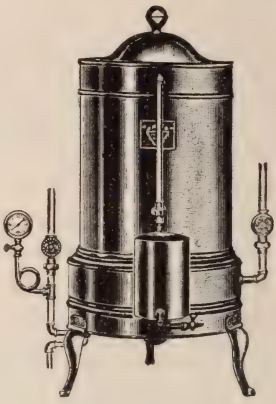
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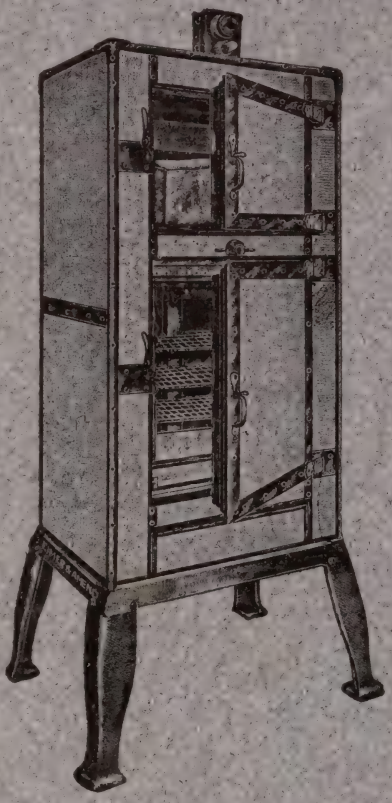
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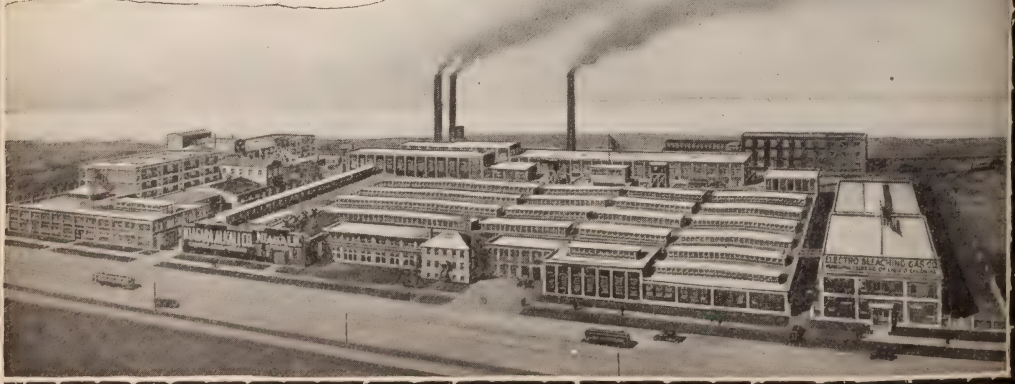
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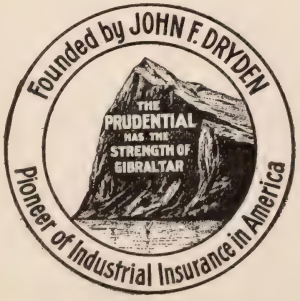
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In these last four decades thousands of Bell engineers have developed a system of telephonic communication, so highly perfected that the same crude instrument which at the beginning could hardly carry speech from one room to another can now actually be heard across the continent. This is because of the many inventions and discoveries which have been applied to intervening switchboard, circuits and other transmitting mechanism.

The vision of the engineers has foreseen requirements for increased communication, and step by step the structure of the art has been advanced —each advance utilizing all previous accomplishments.

No one step in advance, since the original invention, is of greater importance, perhaps, than that which has provided the multiplex system, by which five telephone conversations are carried on today simultaneously over one toll line circuit, or by which forty telegraphic messages can be sent over the one pair of wires. As in a composite photograph the pictures are combined, so the several voice waves mingle on the circuit to be again separated for their various destinations.

By this wonderful development the Bell System obtains for the public a multiplied usefulness from its long distance plant and can more speedily and completely meet the needs of a nation of telephone users.

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AND ASSOCIATED COMPANIES

One Policy *One System* *Universal Service*

CAN YOU IMAGINE A BAKING POWDER TALKING TO A DOCTOR?

"But doctor," it might say, "you admit that most human ills are the result of troubles begun in the digestive and intestinal tracts.

"Then, logically, the physician should have intimate knowledge of everything taken into these tracts--

"Which means he should know not only about foods but also about the best methods of preparing foods.

"And that's why," it might conclude, "you should know something of the Ryzon Baking Book and of me—"

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THE PERFECT BAKING POWDER

The Ryzon Baking Book is a scientific, authentic manual of baking powder baking. All directions are given in *level* measurements. Perfect results are assured *always*.

Ryzon, The Perfect Baking Powder, is the scientific, efficient baking powder. It contains three ingredients only: monosodium phosphate, bicarbonate of soda and cornstarch.

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FOOD DEPARTMENT
NEW YORK



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—OF—

The Metropolitan Life Cook Book

Plato's definition of a man as a "two-legged animal without feathers" was ridiculed by Diogenes, who produced a plucked cock, saying, Here is *Plato's Man!*

Philosophers may disagree in their definitions of man but everybody knows that to live he must have food.

Unfortunately we do not all realize that we must eat the right kinds of food to be at our best and work most efficiently.

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Leucocyte Extract Squibb has given excellent results and should be considered for every case.

Put up in the Squibb Special Aseptic Syringe (one dose, 10 c.c., in each syringe) ready for immediate use. **$2.50 each**

For Bleeding from Lungs, Intestines, etc., accompanying or following Influenza, *Thromboplastin Hypodermic Squibb* is recommended. It should be given subcutaneously or intravenously. It is an efficacious haemostatic, acting physiologically. **20 c.c. Vials, $1.00**

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For the treatment of **Acute Lobar Pneumonia,** Type 1, *Anti-Pneumococcic Serum Squibb* (*Type 1*) is indicated. Its use is no longer experimental. Type 1 serum is now a recognized remedy. **50 c.c. Vials, $6.50. 100 c.c. Vials, $12.00**

For **Pneumonia,** types 2, 3, and 4, *Leucocyte Extract Squibb* gives excellent results.

Leucocyte Extract Squibb is put up in aseptic syringes—one dose in each—ready for immediate use.

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Thromboplastin Squibb (*Local*) is efficacious if bleeding points are accessible; *Thromboplastin Hypodermic Squibb* should be used if the bleeding is concealed.

Full directions accompany each package. Write for further information.

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"You Are Paying the Penalty of Thoughtlessness"

"You have been warned against your dilapidated out-house. Now it has brought you disease and you are reaping the result of your own neglect. The out-house is an outrage and should not be tolerated."

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Waterless Toilet Equipment

affords perfect sanitary sewage disposal without sewers, water or cess pool.

Any Health Officer can unquestionably render great service by recommending the installation of Kaustine Waterless Toilets and Urinals in public institutions, schools, churches, factories and private homes.

Kaustine Toilets are just like water closets in appearance, but more sanitary and economical. The initial cost is low and the up-keep very slight. Every part of the system is guaranteed, particularly the service.

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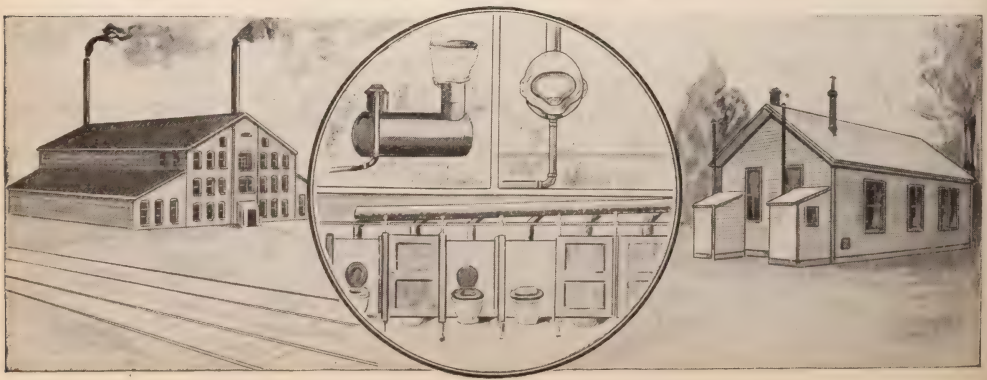
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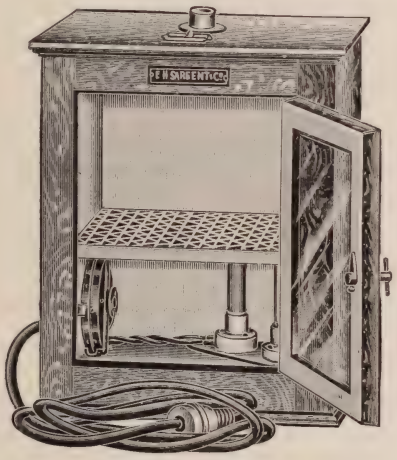


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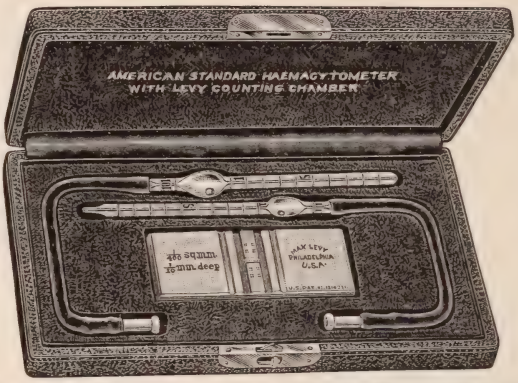
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HAEMACYTOMETERS
WITH LEVY COUNTING CHAMBER

The Levy Counting Chamber was announced in November, 1916, was patented January 31, 1917, (U. S. Patent No. 1,214,331) and was awarded the Edward Longstreth Medal of Merit by the Franklin Institute, Philadelphia, Dec. 1917.



No. 29983. American Standard Haemacytometer with Levy Counting Chamber with double Neubauer ruling

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During the war 4,064 AMERICAN STANDARD HAEMACYTOMETERS with Levy Counting Chamber with Neubauer ruling were supplied the U. S. Army Medical Department, in addition to 1100 separate Levy Counting Chambers with Fuchs-Rosenthal ruling for spinal fluid investigations. At the time of the armistice there were undelivered 1700 complete American Standard Haemacytometers with Levy Counting Chamber on our contracts, for which we accepted cancellation.

IMPORTANCE OF BUREAU OF STANDARDS CERTIFICATION

We emphasize the importance of using Haemacytometers with Bureau of Standards certificate for both counting chambers and pipettes, as many Haemacytometers in use are so inaccurate — particularly as to depth of chamber — as to largely invalidate the result of counts. Exact measurement in the clinical laboratory of either ruling or depth of chamber is difficult, and where precise blood counts are desired the use of a certified Haemacytometer is clearly indicated.

The Levy Counting Chamber, since its first announcement, has been regularly stocked by us with Bureau of Standards certificate and the tolerances published by the Bureau were established at our request.

ARTHUR H. THOMAS COMPANY

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Successfully Prevented

THE use of POLLEN ANTIGEN— *Lederle* has successfully prevented hay-fever in 81.6% of 9,000 cases, including vernal and autumnal types, during the four years 1915 to 1918 inclusive. These favorable results were reported from 44 States in the Union, from Maine to California; and from Canada, Porto Rico and Cuba.

POLLEN ANTIGEN— *Lederle* possesses these advantages:

1. Prepared from pure pollen grains.
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3. Will not deteriorate on long standing.
4. Manufactured under U. S. Gov't. license.
5. May be used without preliminary diagnostic tests.
6. Will NOT cause artificial sensitization.

POLLEN ANTIGEN— *Lederle* is supplied in the following packages:

Complete Series,	Doses 1 to 15 . .	$15.00
Series A	Doses 1 to 5 . .	5.00
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Series C	Doses 11 to 15 . .	5.00

SPECIAL booklet sent on request.

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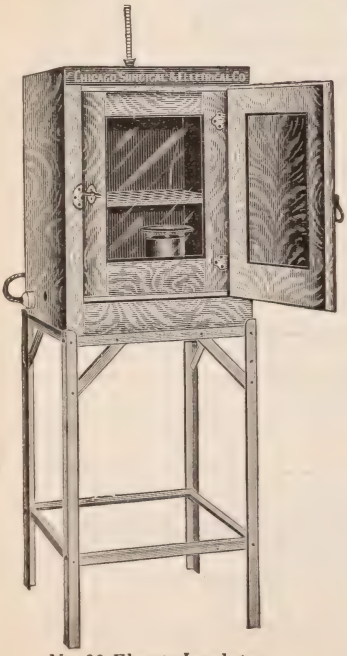
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Size Used By U. S. Army In Base Hospitals

Constant Uniform Temperature Control

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Public Health Clippings

A nation is an aggregation of individuals for the purpose of mutual helpfulness and there should be no room in it for those whose lives are harmful to the best interests of the whole.—*Michigan Public Health.*

✻

Overheard.—"They've got an alienist examining poor Bill."

"Why an alienist? Aren't our American doctors up on that brainstorm stuff?"—*Boston Transcript.*

✻

California Discounts the Polluted Drinking Glass.—These are a couple of the State Board of Health regulations:

All bottled goods must be sold and served in the original containers, and straws must be inserted in the bottle for the customer's use. The contents of the bottle must not be poured into a glass.

All straws used at soda fountains and soft-drink stands shall be kept in suitable containers to keep same in a sanitary, cleanly, and safe condition, with the ends protected from dust.

✻

Useless.—Casey was sick, and the doctor prescribed an emetic for him. "Sure, doctor," said Casey, "an emetic will do me no good—for Oi have taken siveral an' could never keep wan on me stommick."—*Boston Transcript.*

✻

Since preventable disease and crime exact from us the greatest amount of suffering and sorrow, why not prevent the tax through efficient health supervision, abate the suffering and sorrow by sensible and less costly means?—*Michigan Public Health.*

✻

Some Quarantine!—A physician was calling at a house where a child had the scarlet fever.

"You keep the patient away from the rest of the children, I suppose," he remarked.

"Oh, yes, indeed," was the mother's reply. "I don't let him come near the others except for meals."—*Boston Transcript.*

✻

"Public health is the foundation on which reposes the happiness of a people and the power of a country. The care of the public health, then, is the first duty of a nation."—*Lord Beaconfield.*

(*Continued on Page XXI*)

DO SCIENTISTS READ ADS?

A new publication in industrial hygiene is going to be started. It will be well financed and splendidly edited. The Board of Control includes scientific men of high rank in medical and public health worlds.

The Business Manager asked rather timorously about advertisements. He thought these big men would turn him down.

Not a bit of it. A professor in a medical school said emphatically,- "I read the advertisements in good medical journals and get a lot of valuable information. I move that we admit high class advertisements." His motion was carried although this Journal does not need the money.

MORAL—Scientific men believe in advertising.

Get the habit yourself.

AMERICAN JOURNAL
OF PUBLIC HEALTH

(Advertising Talk #13)

Vitrified Salt-Glazed Sanitary Sewer Pipe



Has Never Before Been Advertised

VITRIFIED Salt-Glazed Sanitary Sewer Pipe was never before advertised in the American Journal of Public Health—a great oversight on our part. Engineers know that Vitrified Salt-Glazed Sanitary Clay Sewer Pipe makes the most dependable sewer, but we have never told the doctors or the public health officials about it.

Since you know the value of sanitary glazed porcelain (clay) in the operating room and laboratory, in the bath room and in the kitchen, you will appreciate what Vitrified Salt-Glazed Clay Sewer Pipe means in the sewer.

IT IS SANITARY

There are no "Ifs"

CLAY PRODUCTS ASSOCIATION

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CHICAGO, ILLINOIS

PUBLIC HEALTH CLIPPINGS—*Continued*

Little Bo-Peep.

Little Bo-Peep has gone to sleep
With windows and doors closed tight.
She will get out of bed
With a pain in her head
If she sleeps that way all night.

But her Sister Jill, who went up the hill,
The "Good Soldier" rule applied—
"Fresh air is right
Both day and night."
And opened the windows wide.

Next morn in surprise, Peep opened her eyes
And thought for a moment or two.
Then she said, "If fresh air
Makes one feel so fair,
I'll be a Good Soldier like you."

—*Kansas State Board Of Health.*

"If inventory and stock-taking are essential in business, so in the field of human welfare, the registration of births and deaths lies at the very foundation."—*Kingsley.*

Cumberland (Md.) Jottings.—Bad housing conditions do not necessarily mean that the houses are bad. More often it applies to the manner in which people use them. A perfectly good house for five people becomes a bad house when occupied by a dozen or more. The big, important thing is that we make a right use of our houses, to keep them clean and see to it that they are not overcrowded.

Registered dogs have been in vogue a long time. Not so with babies. The lineage of any baby born in Cumberland today cannot be traced back due to lack of birth records.

The only thing the Cumberland Health Department is doing for the many babies that die each year, is to see that a proper death certificate is filed.

"I know how to take care of a diphtheria patient. My daughter had it and died."

Anent the Passing Towel.—The millionaire, whose wife had recently died, walked through the general office to his private room. While so doing something caught his eye, and he called the manager.

"Wilson, I am very glad to see you sympathize with me in my recent loss by decorating my office with a little crape," he said, pointing in the direction of a black piece of cloth hanging on the wall.

The manager looked dumbfounded.

"Crape, sir? Crape! That's not crape; it's the office boy's towel."—*Casket Commentary.*

(*Continued on Page XXIII*)



IN the days of pneumonia convelescence, Borden's Malted Milk provides an important article in the diet. By supplying the greatest amount of nourishment in a most digestible and assimilable form, it helps to dispel general languidness and restores normal strength.

Borden's Malted Milk—pure, rich cow's milk malted by an improved process—makes a partially predigested food-drink that is wholesome and upbuilding. Served hot or cold it is especially appealing to the delicate appetite.

Send professional card for sample, analysis and literatue.

BORDEN'S CONDENSED MILK COMPANY
Established 1857
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THE IMPROVED
MALTED MILK

Leading Medical Journals

American Journal of Syphilis

Published quarterly. $5.00 per year, $5.40 in Canada, $5.80 under foreign postage. Single copies $1.50. Volume begins with January. Loyd Thompson, Managing Editor; Dr. Wm. H. Deaderick, Associate Editor. Staff of fifteen Department Editors, with more than one hundred well-known collaborators.

From 150 to 200 pages of original articles and abstracts in each issue, with many illustrations in black and white and colors. Public Health officers will find in this journal invaluable information on the study and prevention of syphilis. This disease has always been one of great importance to physicians and all who are in any manner guardians of the public health, but the late world war will increase the necessity for greater interest being taken in this disease on account of its wider dissemination. A subscription to the American Journal of Syphilis will enable you to keep in touch with the work being done on this disease by research workers in the various countries of the world. The abstract department is especially valuable.

Journal of Laboratory and Clinical Medicine

Published monthly. $3.00 per year, $3.40 under foreign postage, 30 cents per copy. Volume begins with October. Editor-in-Chief, Dr. Victor C. Vaughan. Associate Editors: Drs. Hans Zinsser, E. C. Southard, D. E. Jackson, P. G. Woolley, F. P. Gay, J. J. R. Macleod, R. G. Pearce, R. S. Morris, G. B. Webb.

The laboratory is of special interest to the public health officer. The Journal of Laboratory and Clinical Medicine under the editorial management of Dr. V. C. Vaughan is rendering unique service in keeping its readers in touch with the progress of laboratory investigations and its relation to clinical medicine and public health work. This journal has been a winner from the very start. Each volume of twelve issues contains from 850 to 1000 pages of original matter and wonderful editorials by the staff, with hundreds of illustrations and color plates.

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To a limited number of new subscribers, we can supply bound volumes of American Journal of Syphilis of Vols. I and II, free of all advertising, with complete index and title page, at a special price of $6.50 per volume. In the two volumes you get 1410 pages of original text with 211 illustrations.

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PUBLIC HEALTH CLIPPINGS—*Continued.*

Proof of the Pudding.—When people get sick they are willing to spend all they have in order to get well. When they are well most of them are unwilling to spend, or allow some one else to spend, very much to keep them from getting sick. Why is it? —*Cumberland, Md., Bulletin.*

*

Tennyson Outdone!

I sneezed a sneeze into the air,
It fell to earth, I know not where,
But keen and strong were the looks of those
In whose vicinity I snoze.

—*Albuquerque Journal.*

*

The Low Cost of Health.—"We hear very much of the high cost of living, but we overlook the fact that many of the best things of life can be had for nothing.

"It costs nothing to stand up and walk and breathe properly.

"Fresh air in the home is free.

"No expense to taking a few simple exercises every morning."—*Buffalo Sanitary Bulletin.*

University of Pennsylvania

COURSE IN PUBLIC HYGIENE

Courses designed for the training of men and women for public health careers were first offered by the University of Pennsylvania in 1906, and classes have been graduated each year since 1909-10.

The courses offered include public, municipal, industrial, and personal hygiene; vital statistics; sanitary engineering; building sanitation, meat and milk hygiene; practical hygiene including physical and chemical methods and bacteriology; protozoölogy; entomology; helminthology and medical zoölogy; medical inspection of schools; sanitary legislation; sanitary surveys.

The course of study extends over a full academic year. The degree of Dr. P. H. (Doctor of Public Hygiene) is confered on all those meeting the requirements of the course.

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Per 1000 Calories



5 Cents



57 Cents



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Ten people can breakfast on Quaker Oats at the cost of one meat breakfast of same energy value.

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Exquisite flavor has made Quaker Oats the dominant oat food the world over. It is flaked from queen grains only—just the rich, plump, flavory oats. We get but ten pounds from a bushel. Yet it costs no extra price.

The Quaker Oats Company
Chicago (3010)

Guardians of Health

Antipneumococcic Serum Polyvalent

The superiority of Antipneumococcic Serum Polyvalent in Pneumonia treatment is clearly brought out by Medalia and Shiff, of the U. S. Army Medical Corps, in the Journal of the A. M. A., November 30, 1918.

Of thirty cases treated with Antipneumococcic Serum Polyvalent, without regard to the kind of infecting organism, not a single case proved fatal or developed empyema or otitis media.

On the other hand, in a series of twenty cases, where type determinations were made and Type I Serum was administered in the three cases showing Type I organisms, there were two deaths, four cases of empyema and three cases of otitis media.

In summarizing their conclusions the authors state: "These facts *** suggest the advisability of using the Polyvalent Serum as a routine measure until such time, at least, as monovalent serums can be produced against the respective individual types of infection."

Pneumo-Serobacterin (Types I, II, III) is indicated in the prevention and treatment of pneumonia.

It is supplied in packages of four syringes, single syringes and in 5-mil vials.

The use of bacterins in the prevention and treatment of pneumonia is recommended by Rosenow. See Journal A. M. A., March 16, 1918, p. 759. Fleming, Practitioner, April, 1917, p. 332. S. Solis-Cohen, Medical Record, April 27, 1918, p. 743. Lister Publication No. 10, South African Institute for Medical Research, 1917.

Pertussis Serobacterin and Bacterin

"The treatment of whooping-cough (pertussis) by means of bacterial vaccines is rational and efficient. The mortality in forty cases treated was zero. The vaccine should be used extensively as a prophylactic means, as it has reduced institutional whooping-cough from 40 to 7 per cent."*

Both Pertussis Serobacterin and Bacterin are furnished in 4-syringe packages, in single syringes, and in 5-mil vials.

*Bloom, New Orleans Medical and Surg. Journal, Vol. 70, No. 3, Sept. 1917, page 282.

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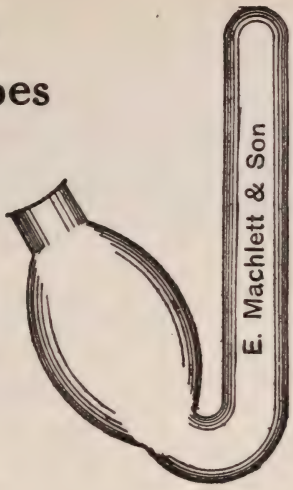
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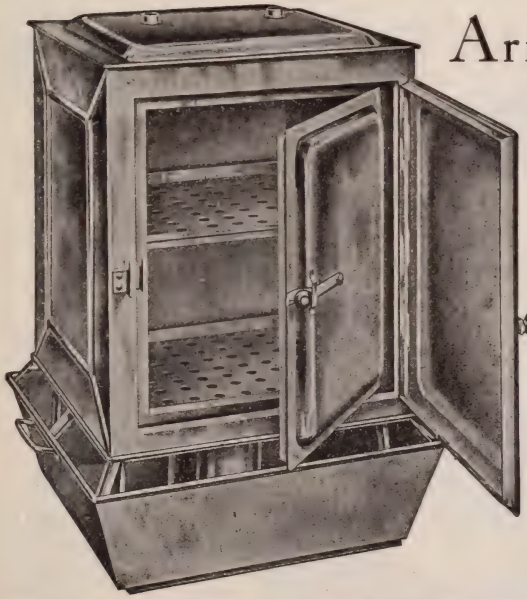
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(*Illustrated*)

This was suggested by Professor W. T. Sedwick, and on account of its many conveniences has attained a very wide popularity. Made entirely of heavy copper and has double walls and doors. A temperature of 100° C. can be maintained indefinitely without attention.

No. 638 *15¼ x 12¼ x 12¼ in.* **$65.00**

There are two other patterns of Arnold Sterilizers: each is made in four sizes.

Catalog "D" sent on request.

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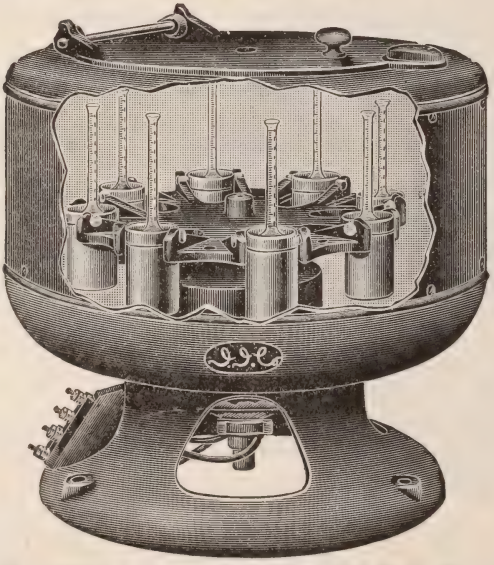
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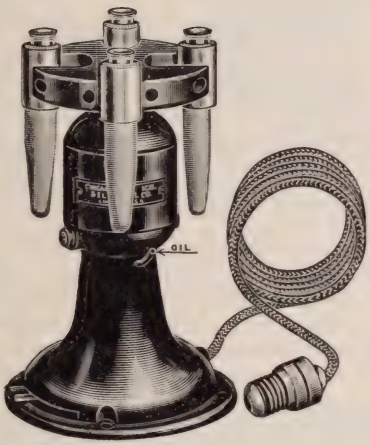
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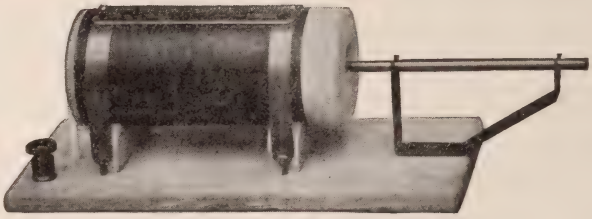
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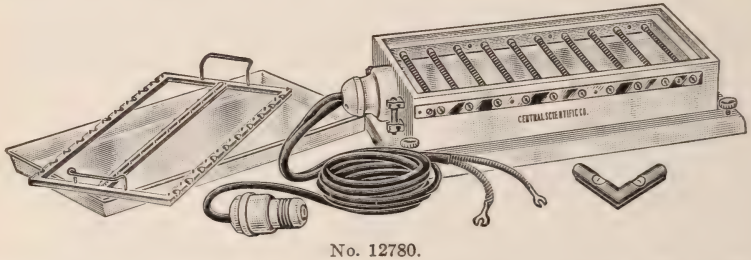


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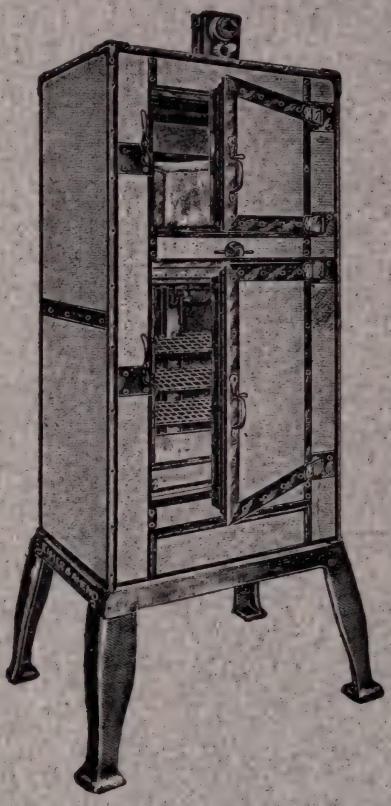
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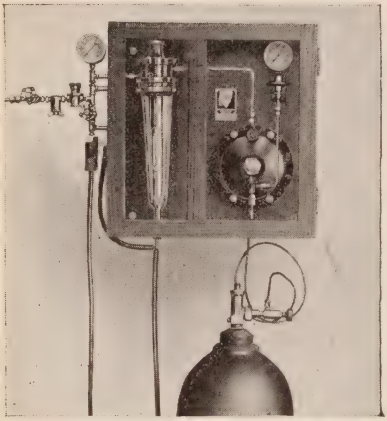
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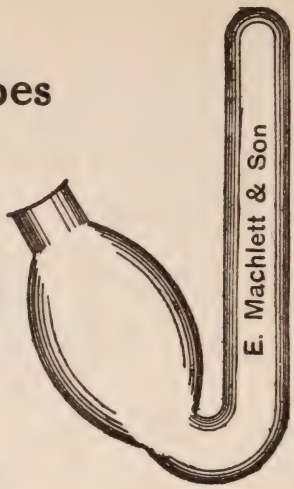
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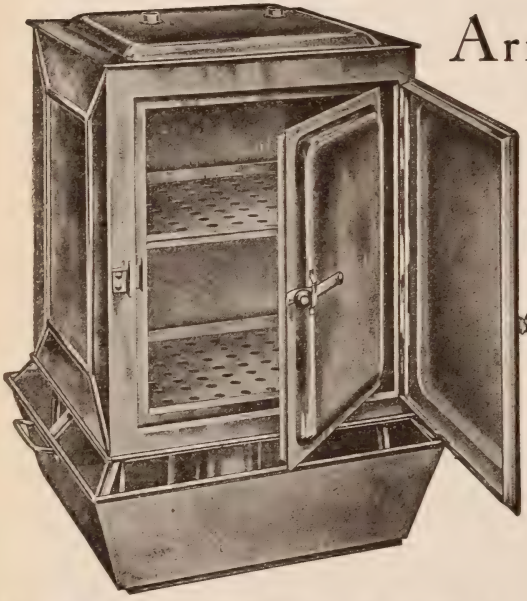
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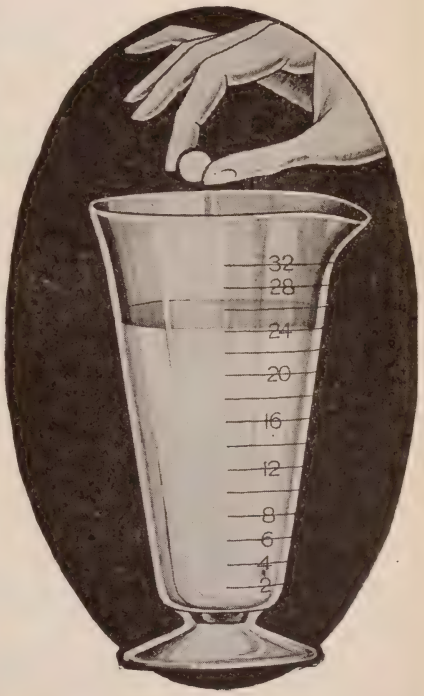
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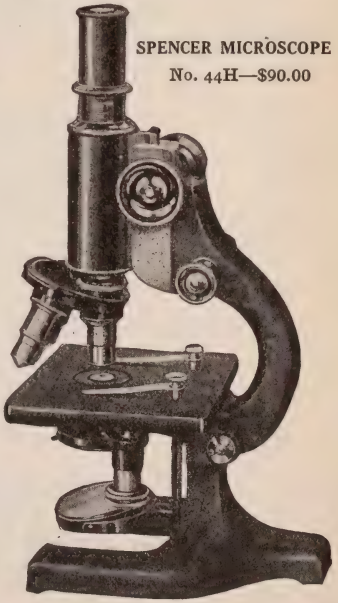
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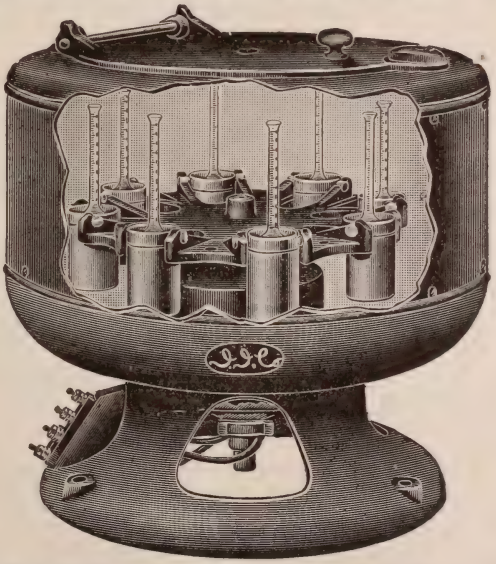
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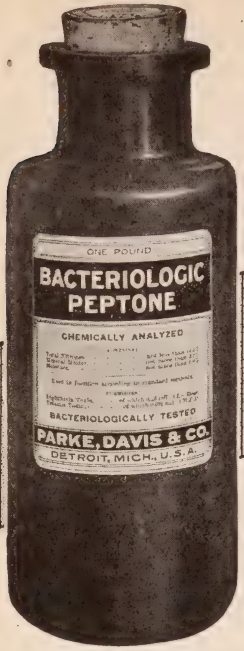
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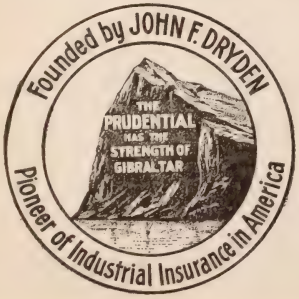
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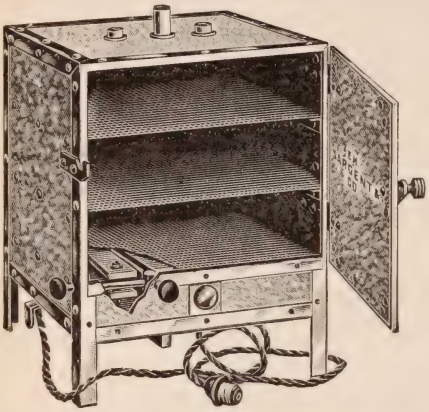
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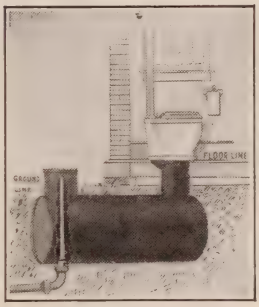
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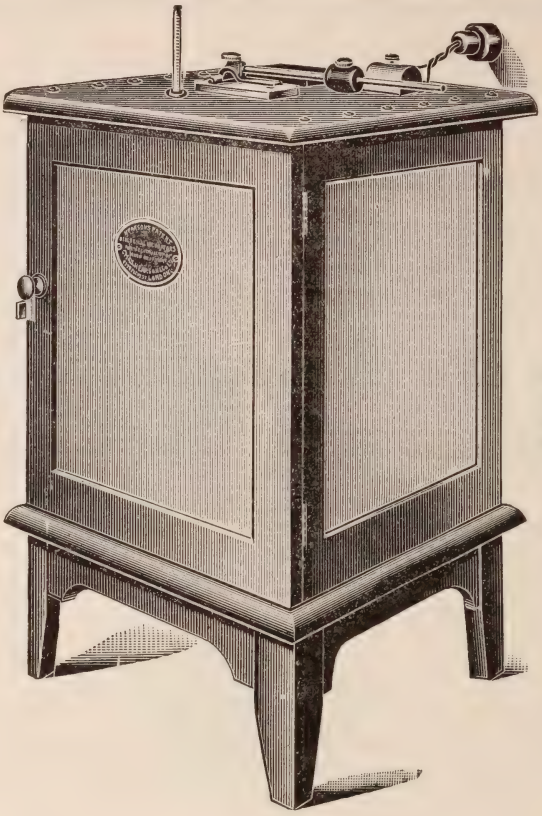
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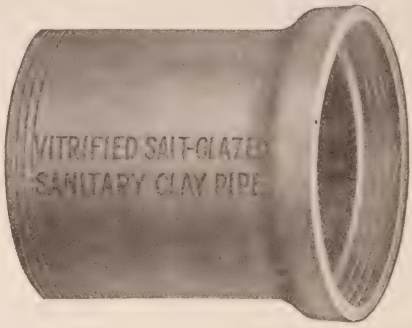
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There once was a diagnostician,
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Use your handkerchief when you sneeze.
—*Penn. Soc. P. T., Phila. Committee poster.*

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—*Boston Transcript.*

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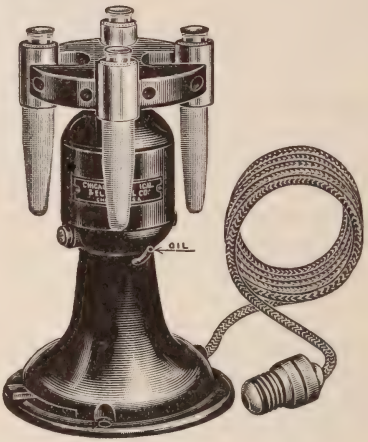
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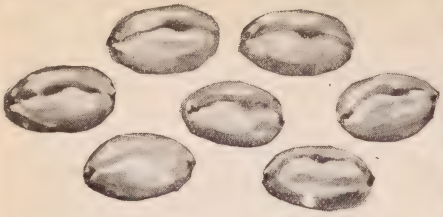
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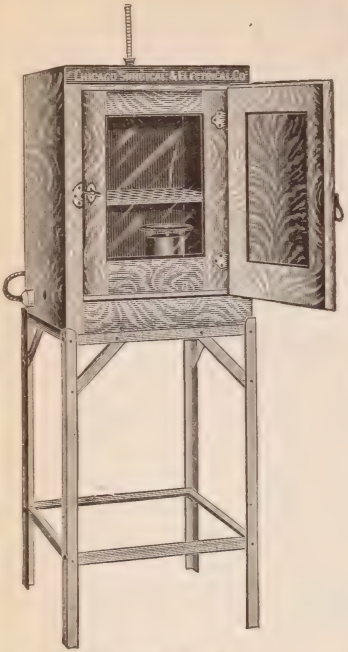
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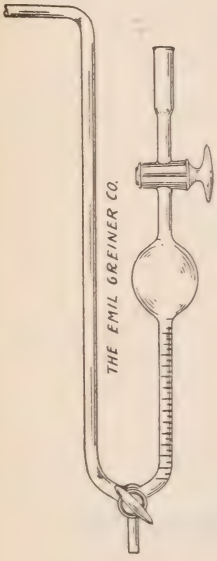
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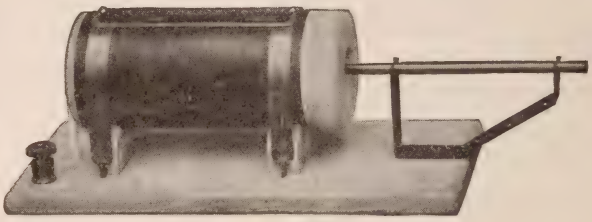
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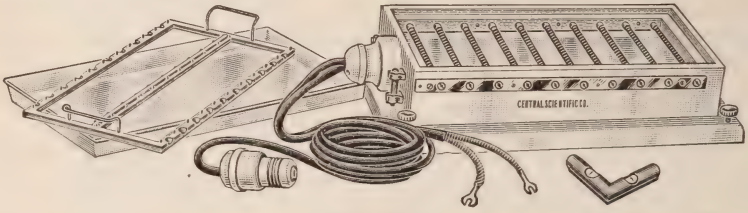


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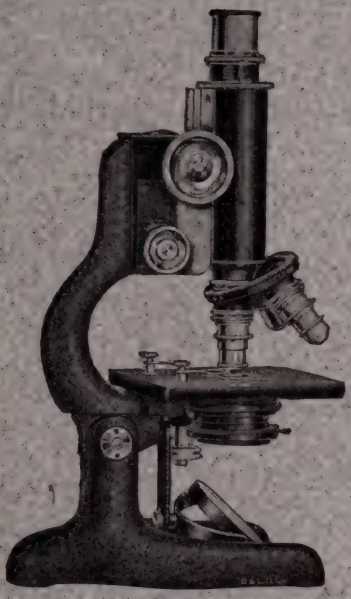
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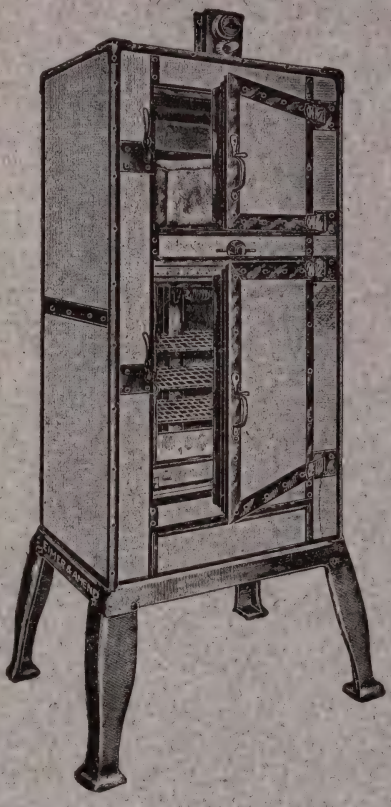
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See Editorial Mention of It on Page 373

See List of New Members on Page 375

And the Campaign News Notes

In This Issue Is a Bird's-Eye View of State Health Legislation, See Page 388

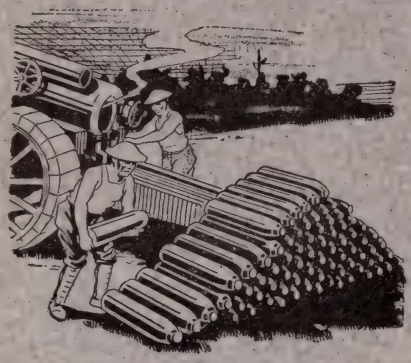
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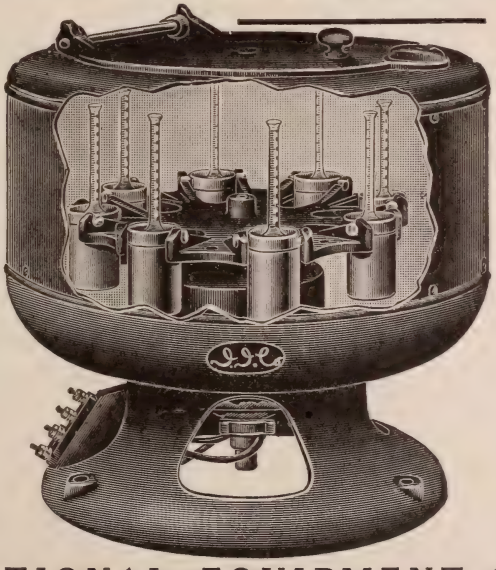
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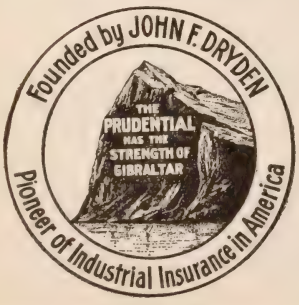
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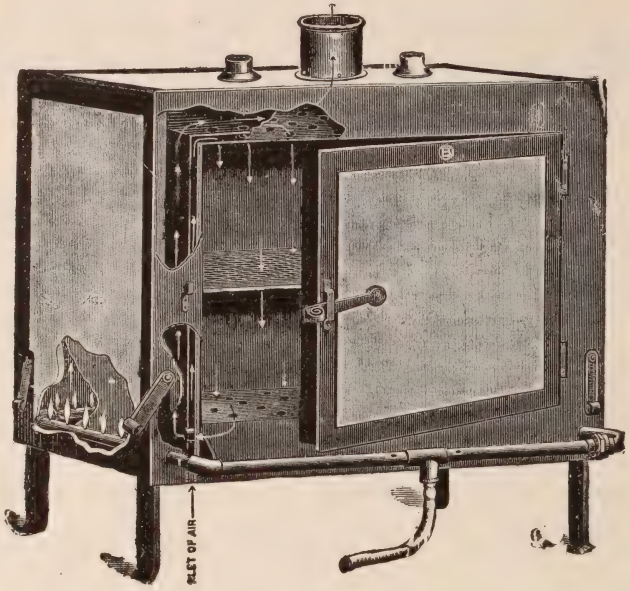
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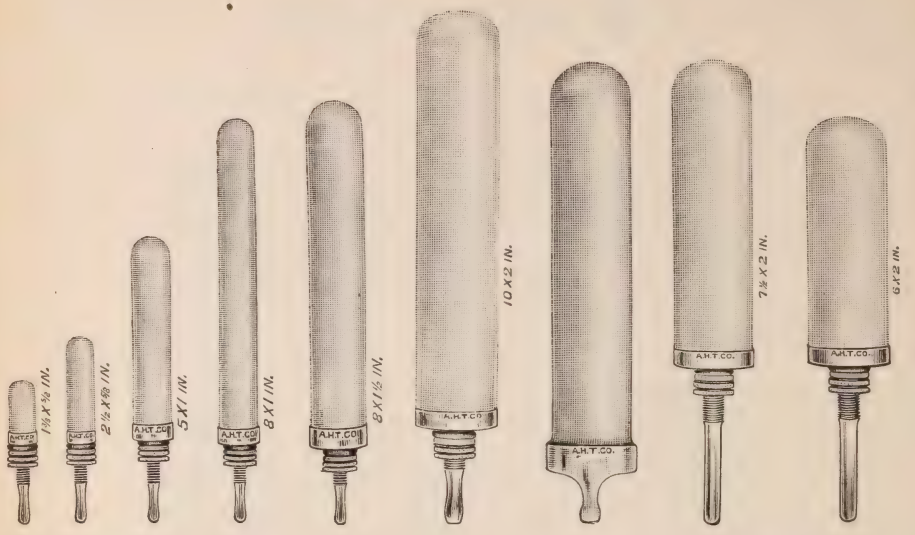
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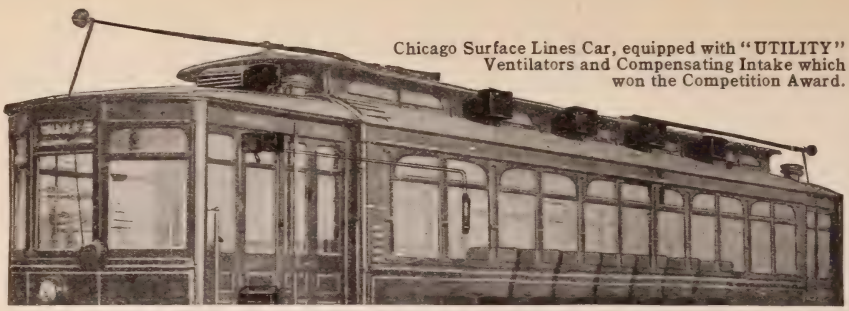
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(*Continued on Page XXI*)

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✻

Be a good neighbor, and it's a safe bet that your neighbor will be a good neighbor to you. Ashes, garbage or chicken coops should not disturb the peace of any locality.—*Buffalo Sanitary Bulletin.*

✻

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"The child is suffering from nervousness and nostalgia," said the physician. "Take her home and she will be all right."

"If she has nostalgia," said Mrs. Newrich, "give me the name of some European specialist and we will have her cured. I have no faith in our home doctors."—*Boston Transcript.*

✻

No sanitary improvement worth the name will be effective, whatever acts you pass or whatever powers you confer on public officers, unless you create an intelligent interest in the public mind.—*Winnipeg Bulletin.*

✻

Clever Bobby.—Father (at table)—Well, son, how did you get along at school today?

Bobby—Pa, my physiology book says conversation at meals should be of a pleasant character. Let's talk about something else.—*Boston Transcript.*

✻

The nurse in the administration of public health is the great key that will unlock health in a world filled with disease.

Harmony in the sick room is indispensable, if the best results are to be derived. Four factors: physician, nurse, patient and friends must work as nearly as possible in one unit.—*Michigan Public Health.*

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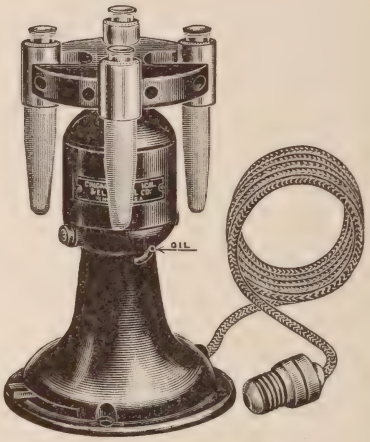
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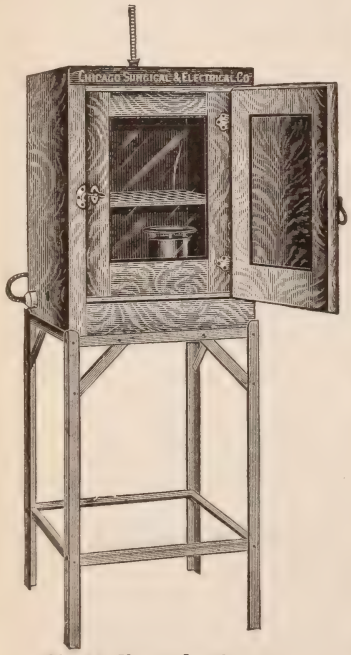
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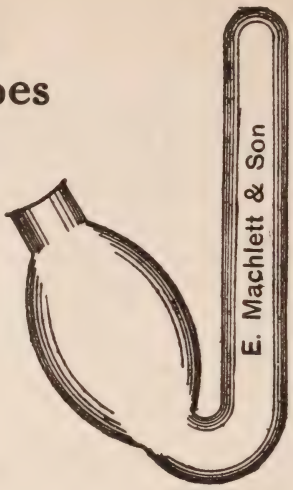
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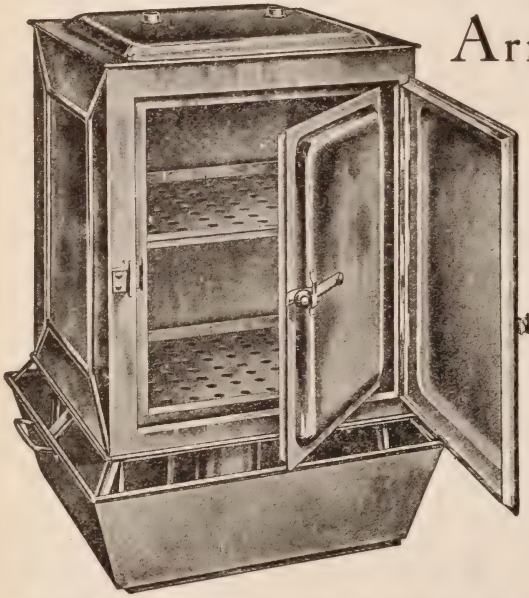
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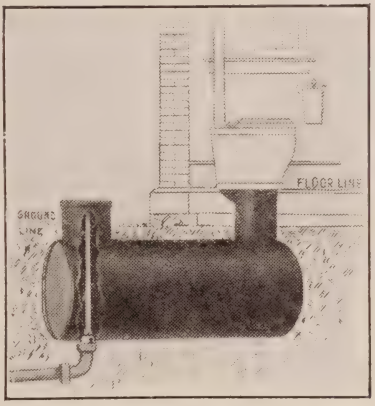
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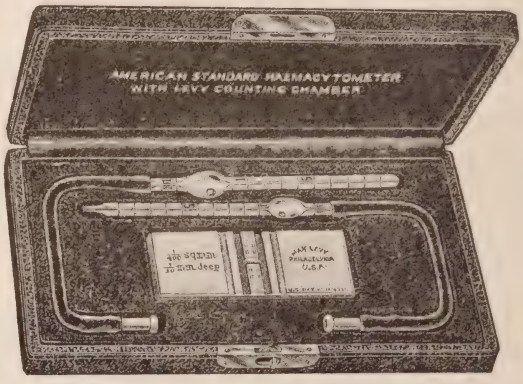
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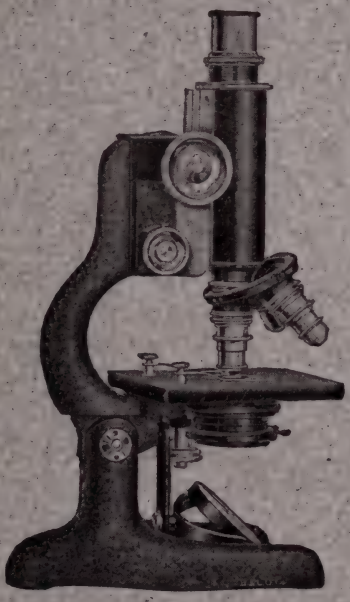
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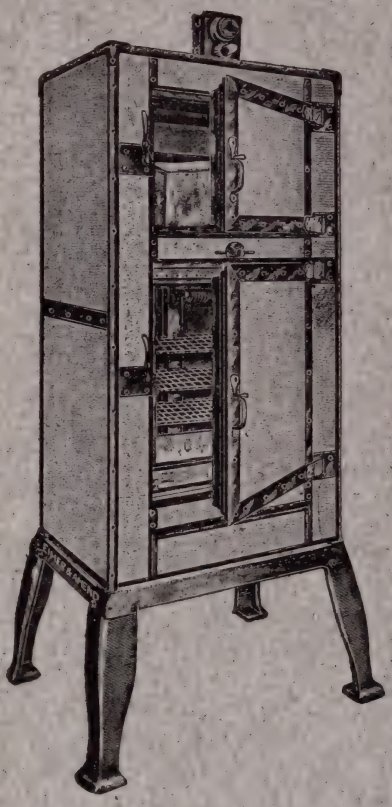
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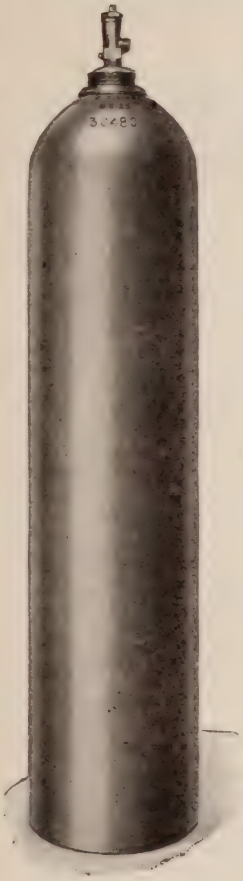
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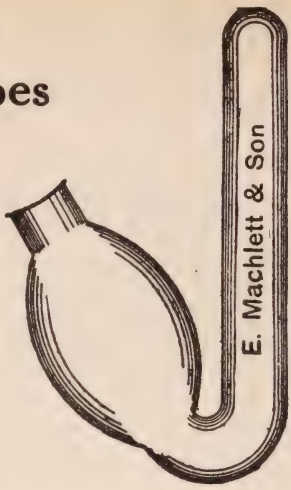
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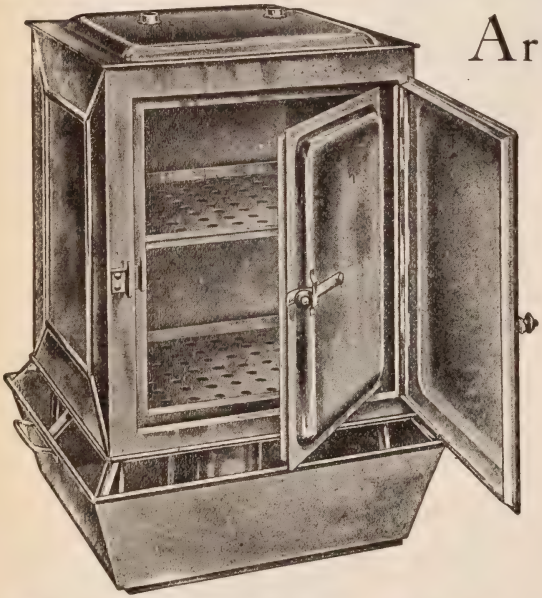
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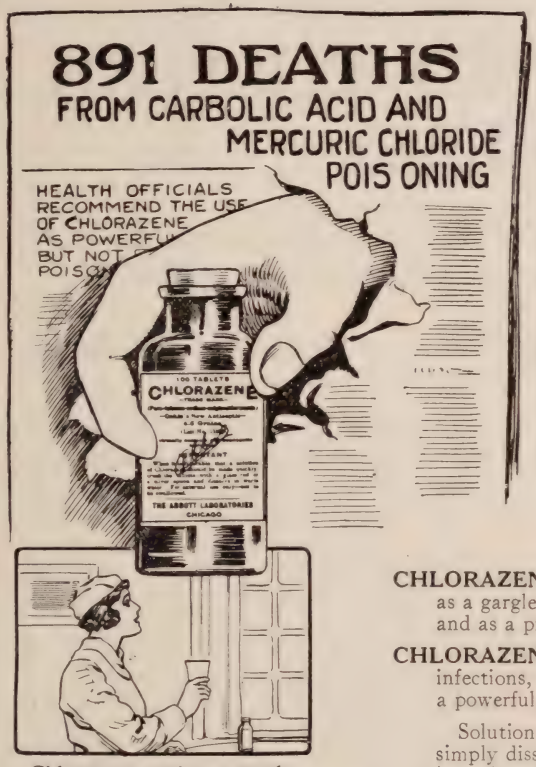
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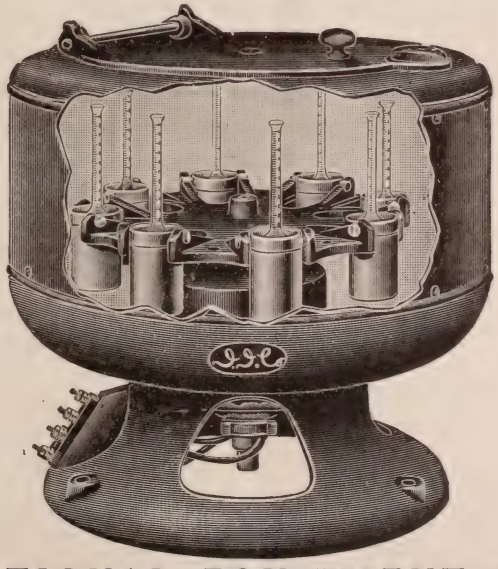
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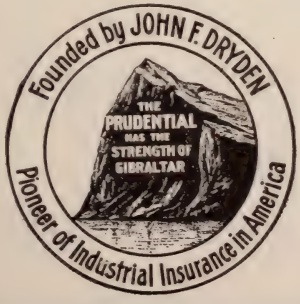
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Pauper Burials and Interment of the Dead in Large Cities (in Press) 1919.

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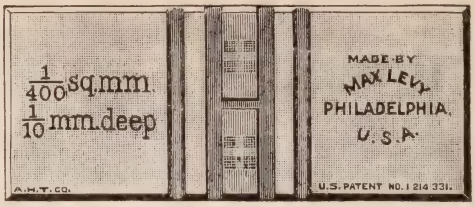


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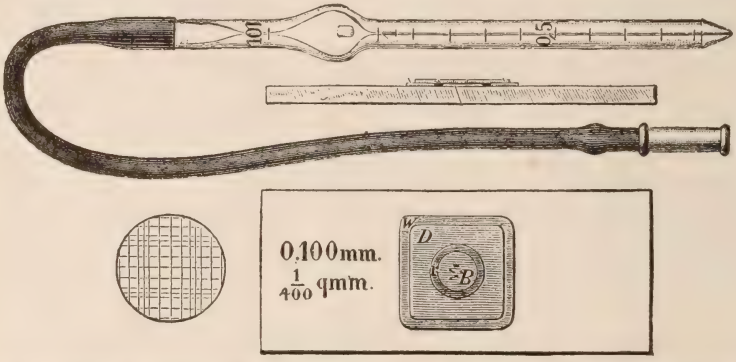


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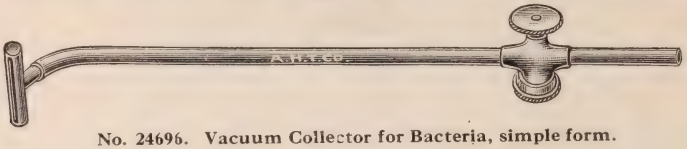
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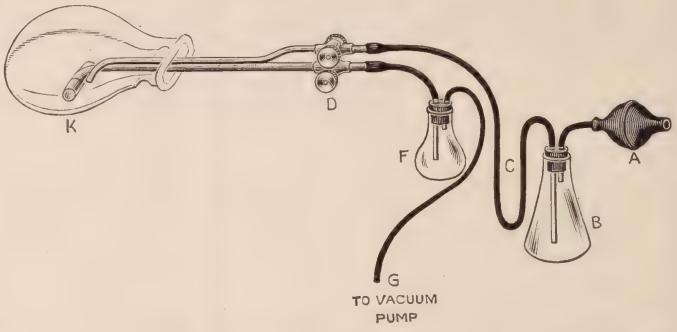
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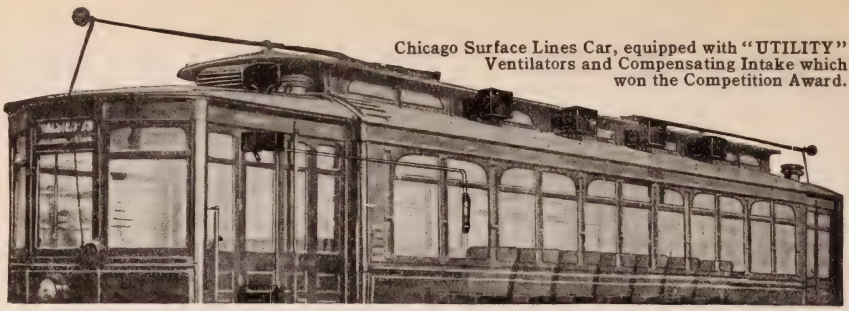
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Public Health Clippings

Rural sanitation must proceed from the home and the school; must be an every-day practice, not a theory. When such a condition exists, we shall have a real system of rural sanitation in the rural portions of Michigan.—*Michigan Public Health.*

*

Strange If He Wasn't.—"Poor Jones is troubled with dyspepsia."

"Well, who wouldn't be?"—*Boston Transcript.*

*

Song of the Mosquito

Did you know mosquitoes bring
Other things besides their sting?
Sometimes when they bite, they leave you
With malaria or with fever.
Dry up all the stagnant places—
Breeding place of all their races;
Keep your screen doors closed, and fling
Defiance to Sir Skeeter's sting!
Let your slogan through the summer
Be, to kill this wicked hummer!

—*Bulletin, Louisiana State Board.*

*

Long Ago Leader in Child Help.—He who helps a child helps humanity with a distinctiveness, an immediateness, which no other help given to human creatures in any stage of this human life can possibly give again.—*Phillips Brooks.*

*

They Undoubtedly Help Him.—"My brother has been greatly benefited by patent medicines."

"That so? What kind did he take?"

"Oh, he didn't take any. He runs a drug store."—*Boston Transcript.*

*

Typhoid fever is more than a disease—it is a disgrace to any community in which it exists.

*

All fires are small—at first. Prevention can tackle the small fire.

*

Bad Spell of Disease.—"Were you ever bothered with dyspepsia?"

"Yes; once I got set back in school for not being able to spell it."—*Boston Transcript.*

*

Twenty-three is Unlucky

There was a young lady named Perkins,
Who had a great fondness for gherkins;
She went to a tea
And ate twenty-three,
Which pickled her internal workins.

Froth.

(*Continued on Page XXI*)

What is the Life of a Child Worth?

"BRINGING IT HOME"

A Motion Picture Educational of the importance of

INFANT WELFARE STATIONS

Showing the operation of a typical Infant Welfare Station and the great good that is accomplished by educating the mothers in the proper care of the baby, especially during the summer.

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PUBLIC HEALTH CLIPPINGS—*Continued*

Knew He Could Pass It Along.—"Mary," said the sick man to his wife, when the doctor had pronounced it a case of smallpox, "if any of my creditors call, tell them that I am at last in a position to give them something."—*Cumberland (Md.) Bulletin.*

*

Education.—Education is a companion which no misfortune can depress, no crime destroy, no enemy alienate, no despotism enslave. At home, a friend; abroad, an introduction; in solitude, a solace; in society, an ornament. Without it what is man? A splendid slave, a reasonable savage.—*Varle.*

*

As the earth, wealth, art, property, all must in a few years be given over to these little ones, may we not wisely use a large proportion of its income to make them worthier to possess it.—*Robert Hunter.*

*

A Real Panacea.—"Is this medicine to be used only for local application?"

"Dear me, no; you can use it anywhere you happen to be."—*Baltimore American.*

*

All Up for Health.—Clean up and paint up and keep it up.—*Buffalo Sanitary Bulletin.*

*

In Doubt.—Friend—I hear that you cured that patient you had with the failing memory.

Doctor—I thought I had, but I'm not so sure now. He went away and forgot to pay my bill.—*Boston Transcript.*

*

A person afflicted with a venereal disease should be treated in the same humane spirit that actuates the physician in other diseases. Furthermore, the interests of the community require that the patient be accorded the best possible care and attention.—*M. J. Rosenau.*

*

I Don't

My parents told me not to smoke;
I don't.
Or listen to a naughty joke;
I don't.
They made it clear I must not wink
At pretty girls, or even think
About intoxicating drink;
I don't.
To dance or flirt is very wrong;
I don't.
Wild youth chase women, wine and song;
I don't.
I kiss no girls, not even one;
I do not know how it is done;
You wouldn't think I'd have much fun—
I DON'T. —*Anon.*

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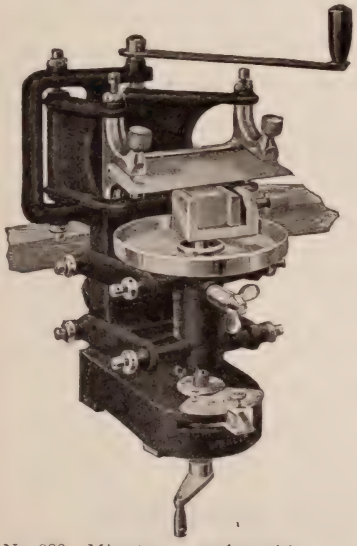
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Push service tray under wafer hopper. This releases one wafer to drop on tray. Pull tray back in front of sliding door. Raise handle — this lifts door and pushes the brick out the proper distance. Lowering hand closes door, cutting off a slice of cream, which drops onto the wafer.

Push tray back under wafer holder, releasing another wafer to form top of the sandwich.
Extend tray bearing sandwich to customer to help himself.
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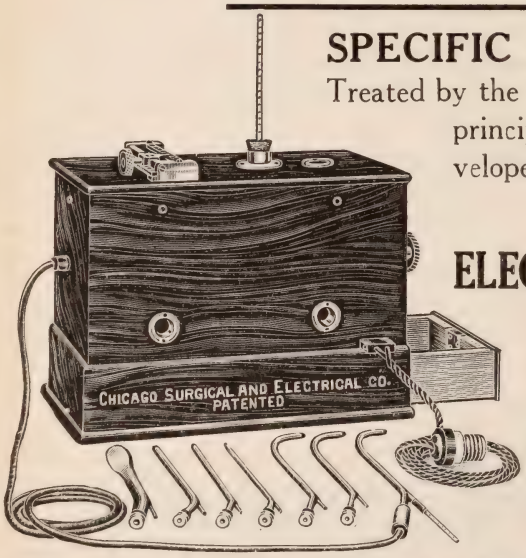
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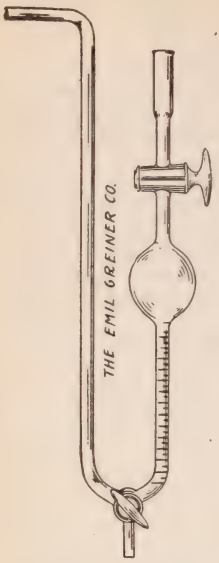
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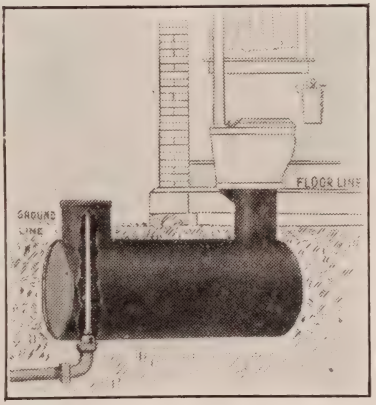
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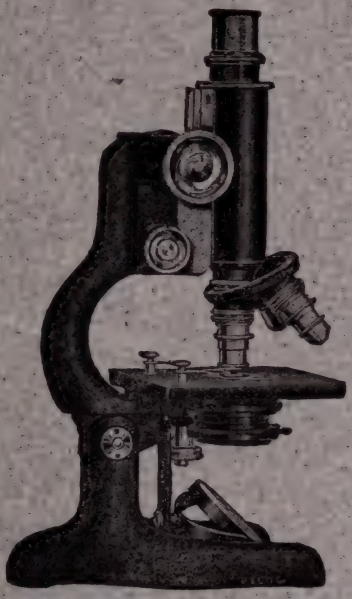
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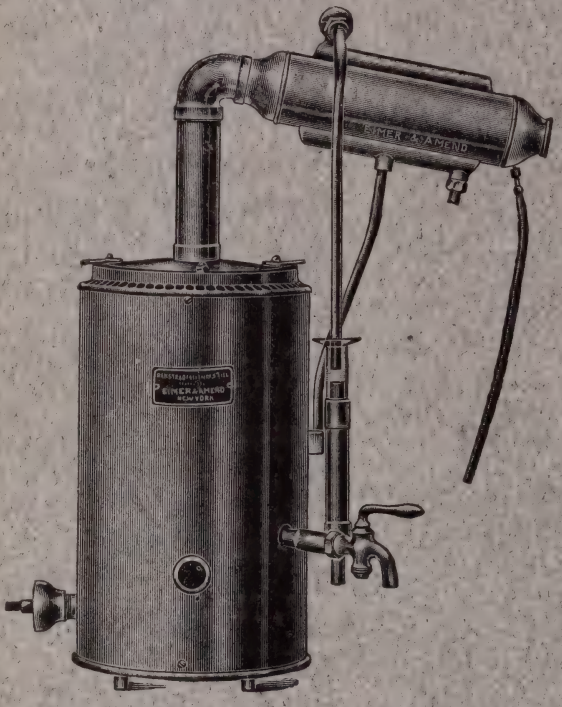
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THE JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

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Dr. Harris on H. C. L. and the Food of the Poor
Col. Whitmore on Lipovaccines
Lieut. Goodman on Conquest of Syphilis in Porto Rico
Dr. Selby on the Division of Industrial Hygiene
And Charts showing Membership Growth

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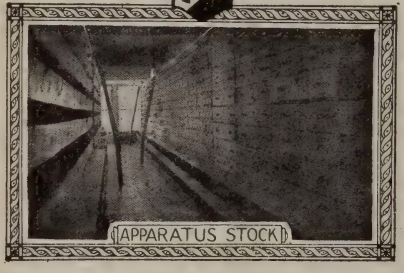
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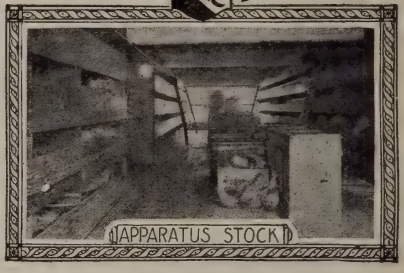
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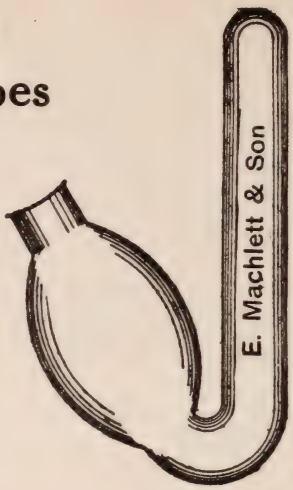
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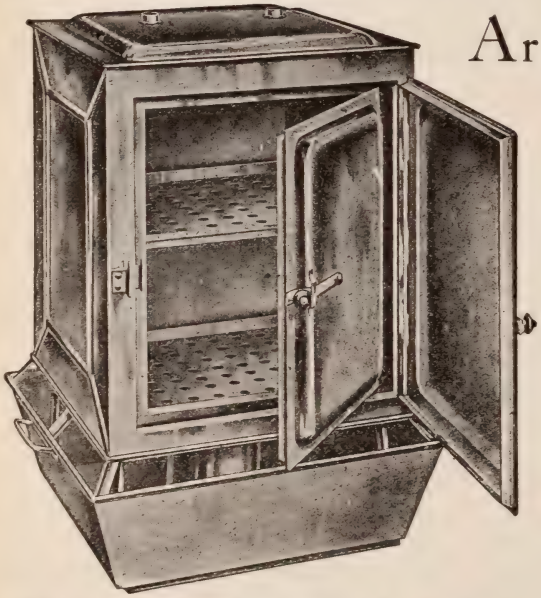
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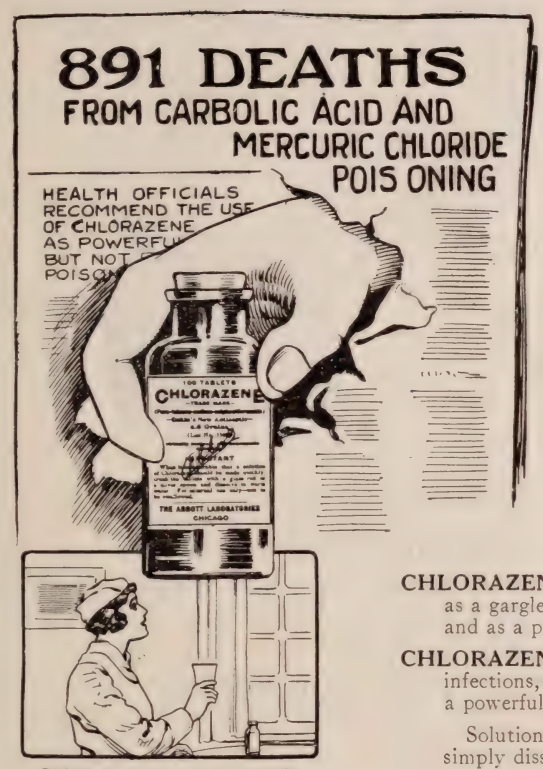
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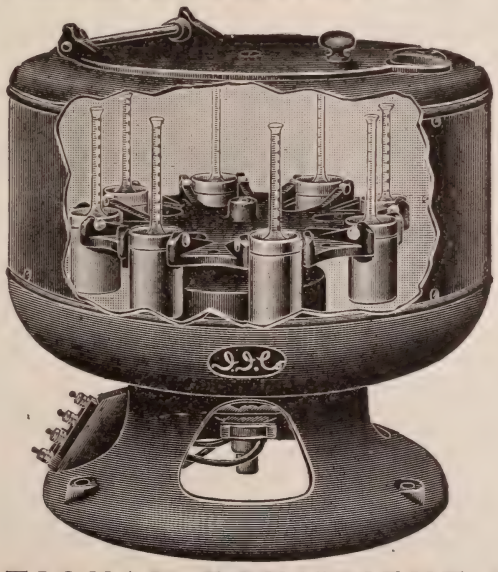
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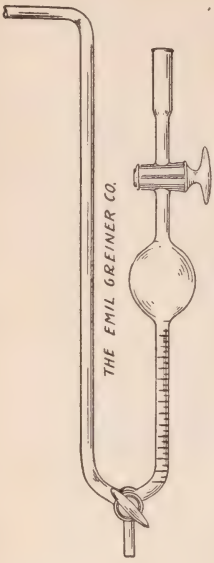


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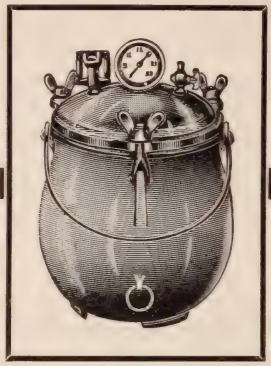
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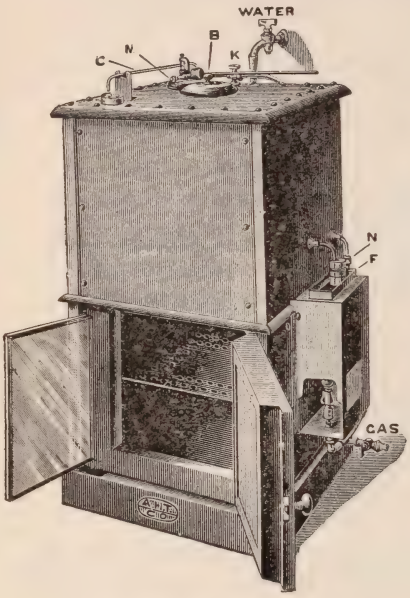
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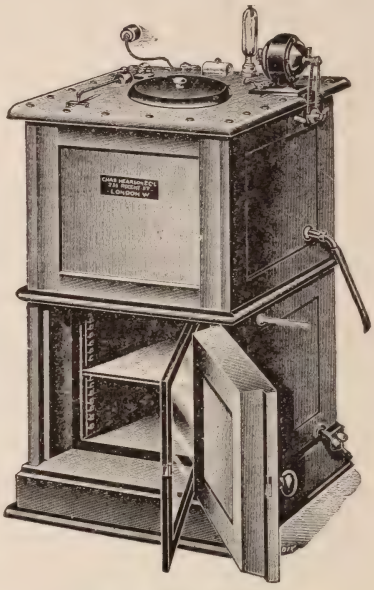
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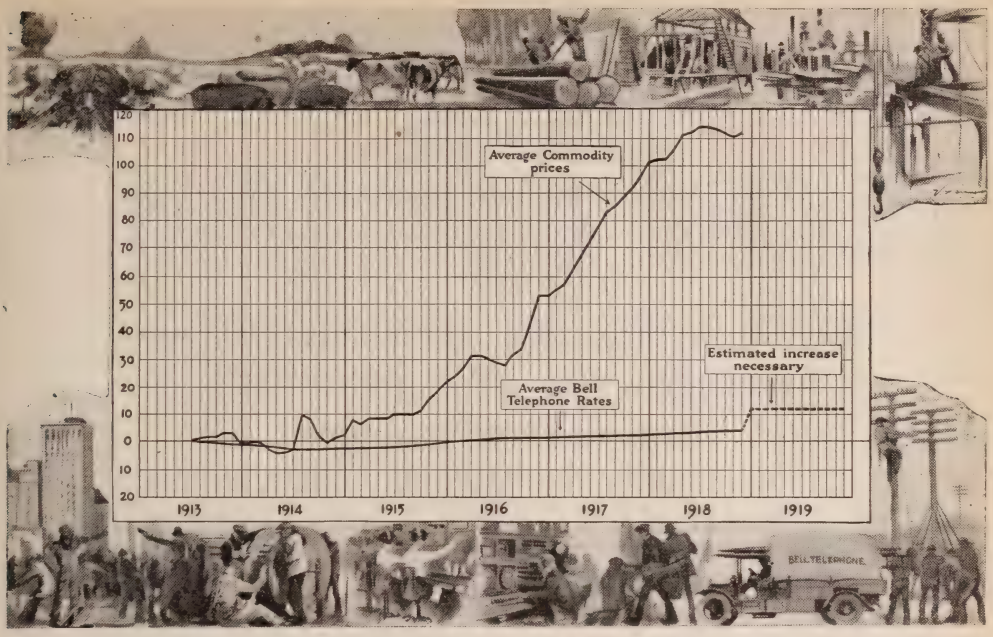
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In your eating habits treat your stomach as your partner, not as your slave. In other words, give it a chance to do its work as nature intended.

A dyspeptic stomach means a clouded brain and a bad disposition.—*Bulletin Chicago School Sanitary Science.*

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A Better Fit

Toastmaster (after the dinner)—I beg your pardon, doctor, for introducing you inadvertently as professor.

Doctor—That's all right. The title fits me better than "doctor" does. I profess to be a doctor, but I get mighty little practice.—*Boston Transcript.*

*

How doth the little busy fly
Go flying gaily to and fro;
Now watch him in the garbage can,
A hundred germs he gathers so,
Then merrily he scatters them
Around, as onward he doth go,
Oh, get the swatter into sight,
And swat Sir Fly with all your might!
—*Bulletin, Louisiana State Board.*

*

Typhoid fever will disappear as soon as people stop eating and drinking human filth. There is no other way to catch it.—*Virginia Health Bulletin.*

*

Cause and Cure

Doctor—You need to be treated for the whiskey habit.

Pat—Begobs, that's how I got it.—*Boston Transcript.*

*

A Doxy Dietary

A paradox is young Fred Frew,
A forward boy, and backward, too.
Another is in diet found—
Square meals it is that make us round.

*

Her Discovery.—Seeing a greatly magnified drop of water on the movie screen and noticing the microbes in it, Marjorie whispered to her mother, "Now I know what bites you when you drink soda water."—*Boston Transcript.*

*

Helping Him Out.—"Your cousin's medical practice, I suppose, doesn't amount to much yet."

"No. We relatives do all we can, but of course we can't be sick all the time."—*Boston Transcript.*

(*Continued on Page XXIII*)

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PUBLIC HEALTH CLIPPINGS—*Continued*

Practical Proverb.—Garbage pails should have tight lids.—*Buffalo Sanitary Bulletin.*

✻

Don't ever trade yer candy,
Don't swap yer chewin' gum,
Don't give away yer apple
When you've been eatin' some;
Be careful 'bout yer hankchief—
Not every feller knows
Yer mustn't never use it
On yer little brother's nose.
—*Georgia Healthology.*

✻

If it is right for the state to appropriate money for the relief of distress it is certainly right for the state to appropriate money for the prevention of distress, which means in a large part prevention of disease.—*Minnesota Health Journal.*

✻

Got to Hustle

"A scientist declares that meat-eaters are more active than vegetarians."

"They've got to be to get the meat to eat."
—*Boston Transcript.*

✻

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"They are very particular at the new bakeshop. The girls who wait on customers have to wear white gloves."

"Yes, and I'm told they don't even allow the ladyfingers to touch the other cookies."—*Boston Transcript.*

✻

Where are you going, my pretty maid?
I'm going to the dentist, kind sir, she said.
What is your fortune, my pretty maid?
My face and my teeth, kind sir, she said.
—*Georgia Healthology.*

✻

There is a budget which we pay with frightful regularity: it is that of unnecessary disease and premature death.—*Irving Fisher.*

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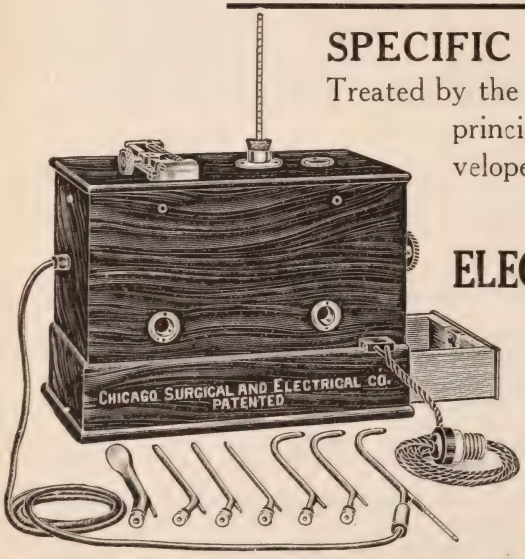
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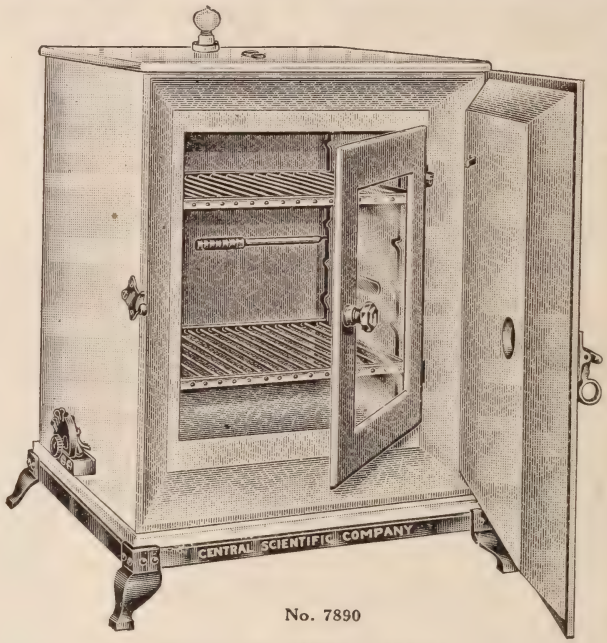
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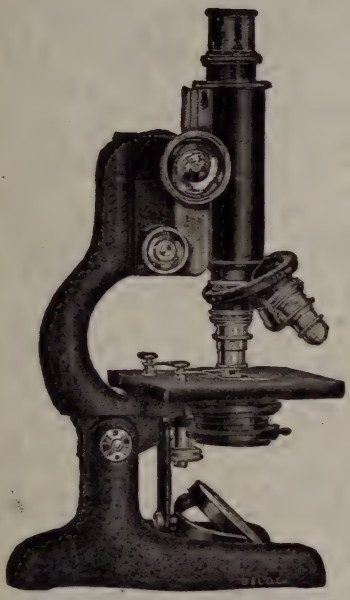
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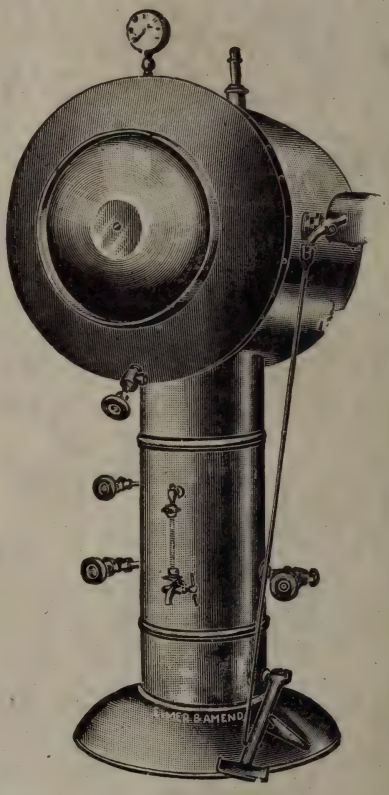
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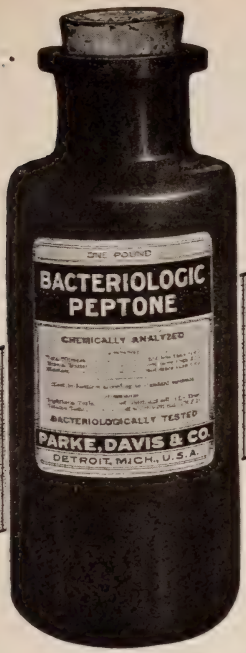
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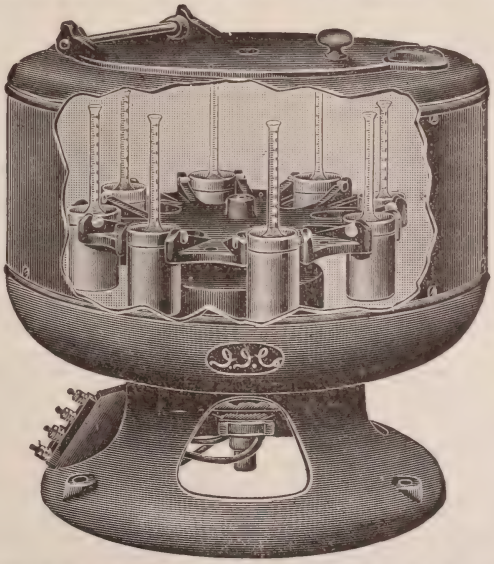
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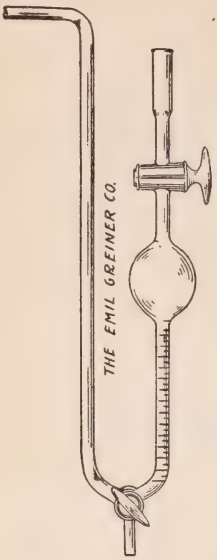


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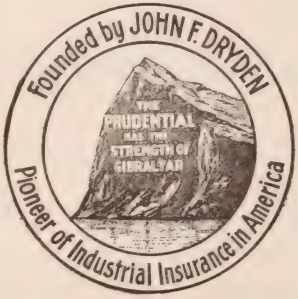
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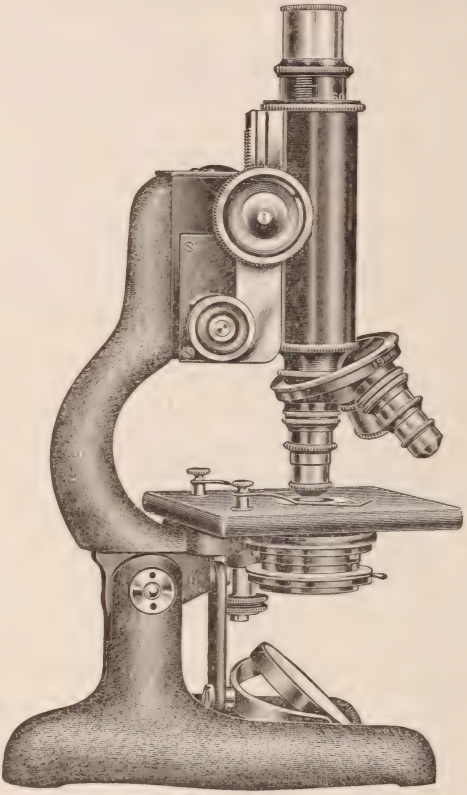
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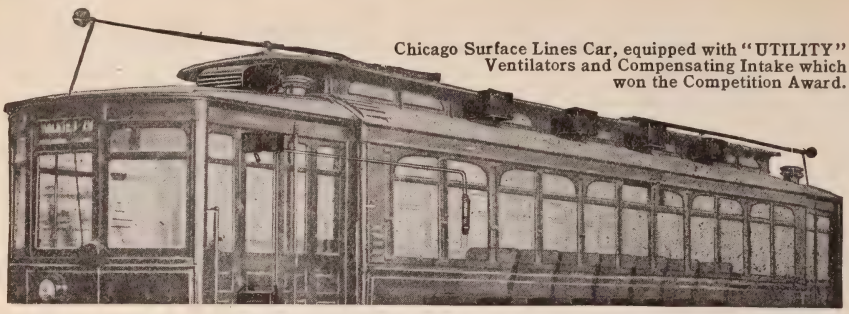
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Rational Procedure
in
Summer Diarrhea

For Infants of any age

Mellin's Food
4 level tablespoonfuls
Water (boiled, then cooled)
16 fluidounces

Give one to three ounces every hour or two, according to the age of the baby, continuing until stools lessen in number and improve in character.

Milk, preferably skimmed, may then be substituted for water—one ounce each day—until regular proportions of milk and water, adapted to the age of the baby, are reached.



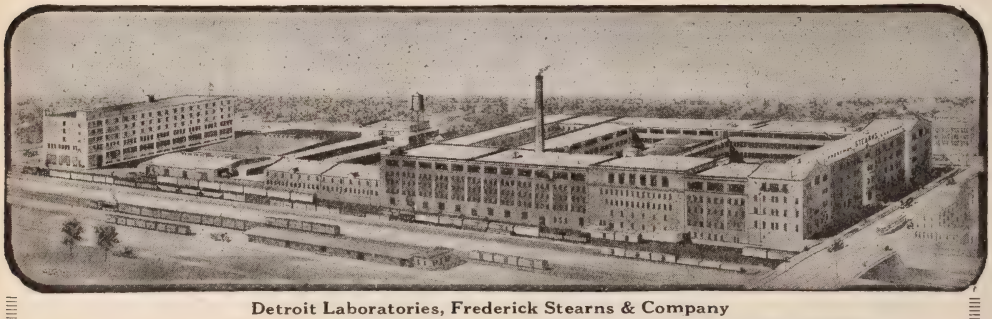
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Public Health Clippings

No health department, state or local, can effectively prevent or control disease without knowledge of when, where and under what conditions cases are occurring.—*U. S. P. H. Service.*

✻

Avoid the crowds, take lots of rest,
Eat well, don't fret, keep fit and stout,
And try to do your level best
To keep the influenza out.—*Boston Transcript.*

✻

Good teeth mean good looks and good health; and good health means bodily strength and vigor. Take good care of your teeth.—*Bulletin, Chicago School Sanitary Science.*

✻

Very Simple Precaution.—At the Food Store: "So! You are selling cheeses now?

"Oh, yes! You know they keep flies away from the meats and sausages."—*From the French.*

✻

Team Work, The Same Whether Army or Health.

It ain't the guns nor armament
Nor funds that they can pay,
But the close coöperation
That makes them win the day.

It ain't the individual,
Nor the Army as a whole,
But the everlasting team work,
Of every bloomin' soul.
—*Rudyard Kipling.*

✻

Children who have made an effort and remained in school have found education profitable because it meant for them increased wages and better jobs. Figures recently made public show that in one large city boys who stayed in school until they were 18, at 25 made almost two and one-half times as much as was earned by the boys who left school at 14.
—*Bulletin Louisiana State Board.*

✻

Too Advanced.—Tony Spagoni was having his throat examined at the infirmary. "Say 'Ah-h-h-h,'" said the doctor.

"Me no spik Englees," said Tony.—*Boston Transcript.*

✻

Spirit Willing, Flesh Weak.—"How about that insomnia cure I gave you?"

"I must apologize, old man. The fact is, I've been too sleepy nights to try it."—*Boston Transcript.*

(*Continued on Page XXI*)

Has Your City an Ordinance for Milk Pasteurization ?

"The Trump Card"

A MOTION PICTURE

Showing how epidemics may be prevented by the pasteurization of all milk.
A human-interest story which will convince all who see it.

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PUBLIC HEALTH CLIPPINGS—*Continued*

A good bath is the best kind of a "night cap."

"Adam's ale," the pure, unadulterated kind, is the best drink.

Many people are sick because they are unacquainted with the personal touch of a toothbrush.

Tonsils are very important in considering the source of rheumatism, heart or kidney disease.

If you want "pep," keep your system "hitting on all the cylinders."—*N. C. Health Bulletin.*

✻

Watch Out.

The Board of Health's rules have come
To our house to stay,
To report the ketchin' diseases,
Keep the neighbor's kids away.
For if you don't report 'em,
There ain't a bit of doubt,
That the Board of Health 'll git you
Ef you don't watch out!
—*Almanac Louisiana State Board of Health.*

✻

A Quick Cure.—Willis—Did the doctor do anything to hasten your recovery?

Wallace—Oh, yes! He told me he was going to charge me a guinea a visit.—*Tit-Bits.*

✻

If you need a doctor, select one in whom you have confidence and then follow his advice.

Good health is 100 per cent efficiency—not merely absence of sickness.

It's the songs you sing and the smiles you wear, that's a-making the sunshine everywhere.
—*N. C. Health Bulletin.*

✻

Flies are dirty, flies are bad,
Nearly drive the babies mad;
Spread disease and germs and dirt,
All the things that people hurt.
Every girl and boy should kill
All they can, with right good will.
—*Bulletin, Louisiana State Board.*

✻

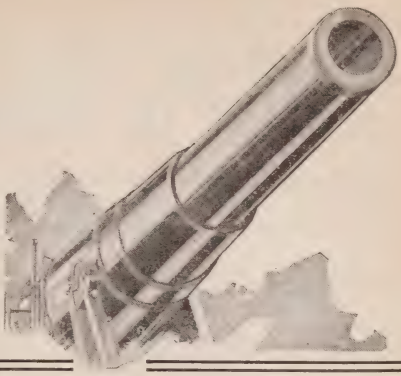
Sick.—"Were you very sick with the flu, Rastus?"

"Sick, sick! Man, Ah was so sick mos' ebery night Ah look in dat er casualty list for mah name."
—*Whizz-Bang, the weekly paper published at the Boston Base Hospital.*

✻

"Ruth! I'm really surprised at you, putting out your tongue at people."

"It was all right, mother; it was only the doctor going past."—*Life.*



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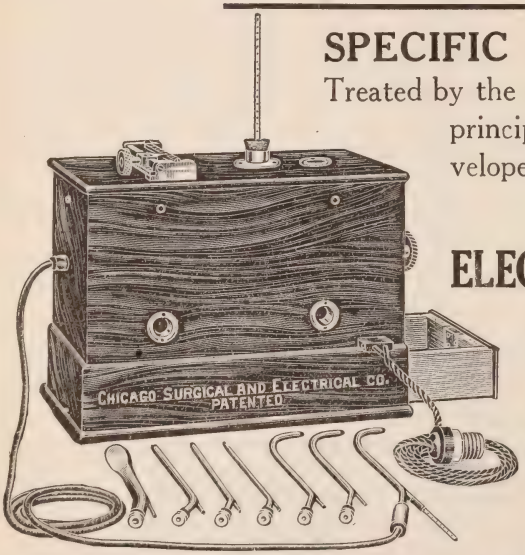
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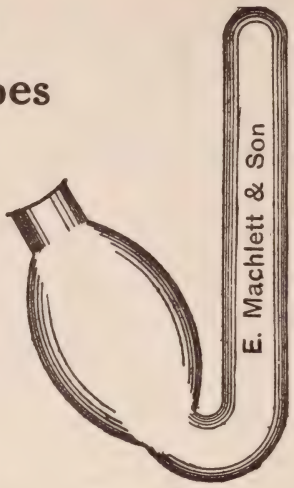
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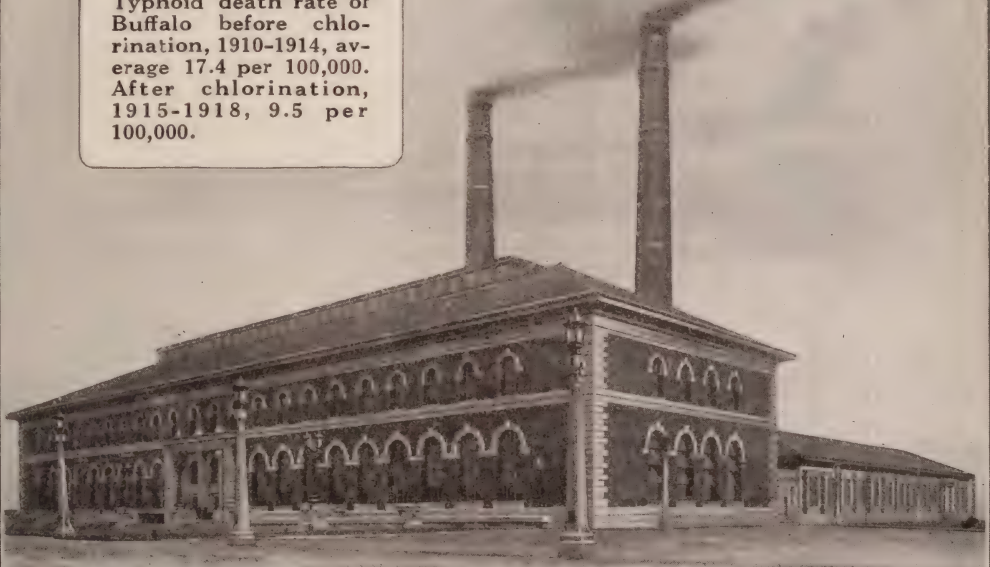


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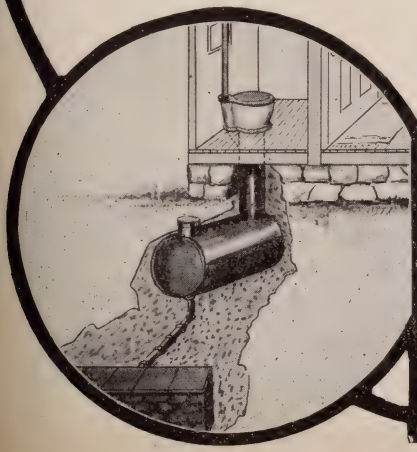
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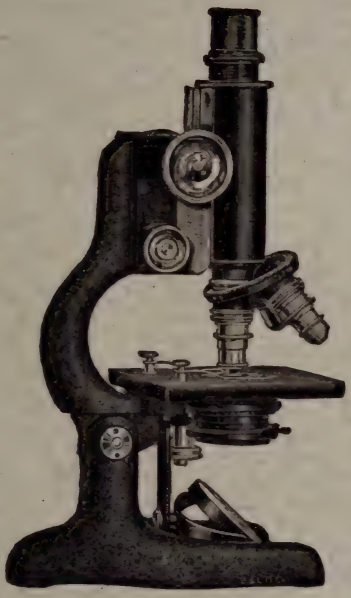
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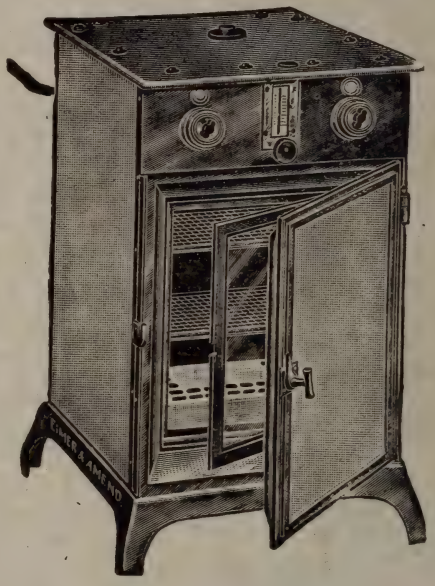
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OF THE

ANNUAL MEETING

AT

NEW ORLEANS, OCTOBER 27-30, 1919

See Pages 699-709
IN THIS ISSUE

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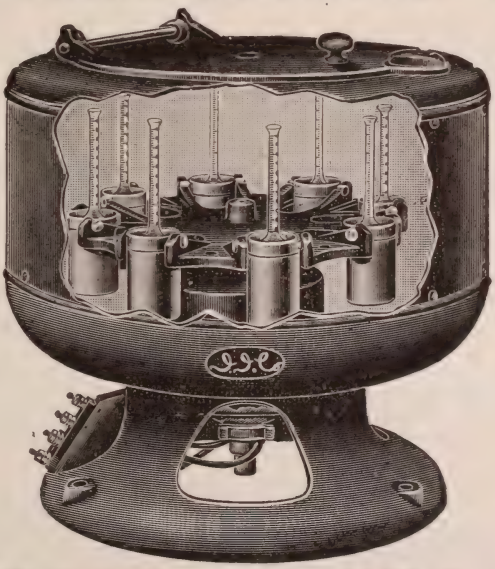
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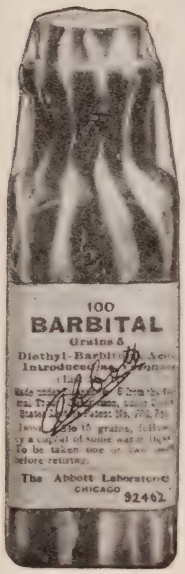
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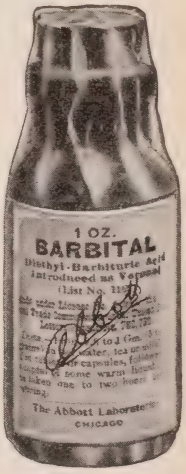
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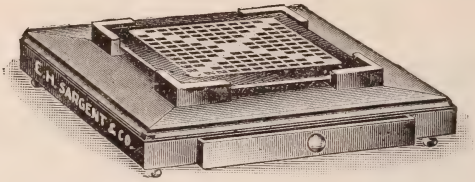
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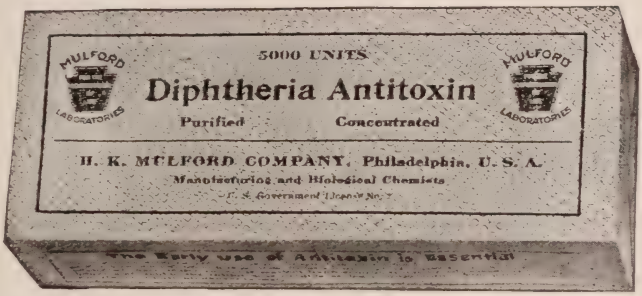
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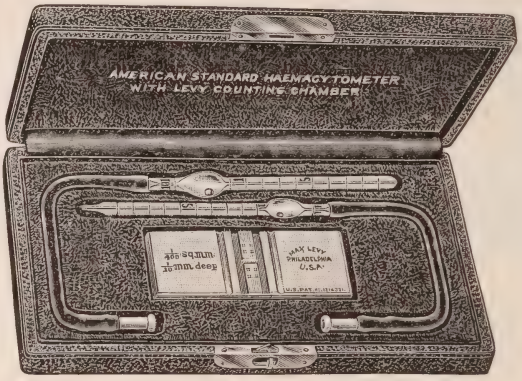
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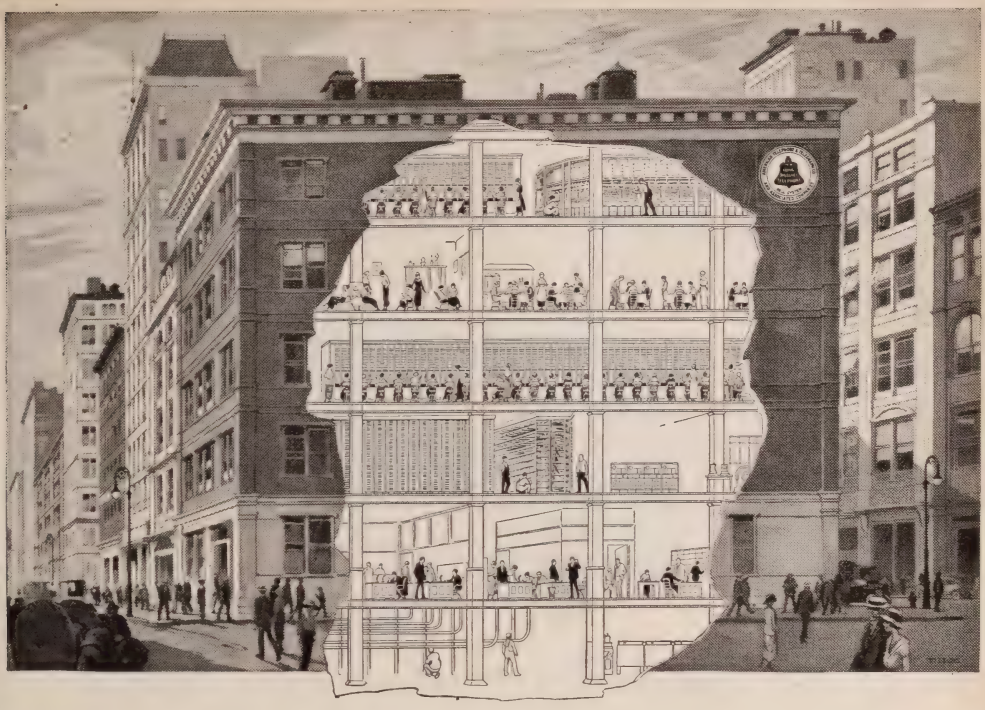
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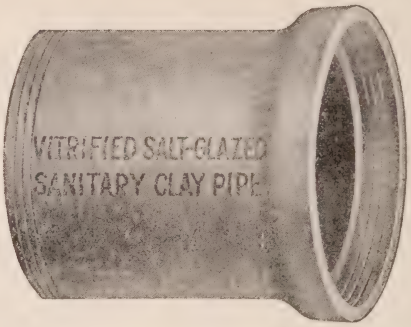
During the war the Bell System devoted all its margin to the needs of the Government. The great task of getting back to normal pre-war excellence of operation requires the re-establishment of an economic operating margin capable of taking care of a larger growth than has ever before confronted the Bell System.

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Guard Against Disease.—Epidemics, like fires, start from a small origin.

In a similar manner they are often preventable. Most fires are caused by preventable carelessness, especially by the accumulation of rubbish and trash in attics, cellars, sheds and neglected corners.—*Buffalo Sanitary Bulletin.*

*

Modern Health Crusaders.

We may not know our lessons well,
Though as to study rules—we've got 'em!
But when it comes to germs and flies,
Why you can bank on it—we swat 'em!
—*J. T. in Herald of the Well Country.*

*

Must be the Heat.—The heat or something has caused a correspondent to inquire if the druggist who keeps bunion plasters shouldn't be arrested for harboring footpads.—*Boston Transcript.*

*

When the nation's roll of honor has been completed, it will contain the names of scores of nurses, who sacrificed everything life holds dear, even life itself, to the great cause for which we were struggling.—*Michigan Public Health.*

*

Personal Inventory.

Do you sleep eight hours?
Do you digest your food?
Bowels evacuate daily?
Kidneys working regularly?
Are you losing or gaining weight?
How do you compare physically with your condition last year?
If the comparison is unfavorable consult your physician.—*Buffalo Sanitary Bulletin.*

*

We Guys Has Our Troubles.—"How inconsiderate is Fate!" complained one of our multi-millionaire associates the other day. "I never knew what dyspepsia was until I had enough money to get what I wanted to eat."—*Boston Transcript.*

*

T. B., M. D., N. G.

A weak, sentimental M. D.
Had a patient with early T. B.
He called it a "cold"
And the lie that he told
Catalogued this M. D. as N. G.
—*Bulletin Kansas State Board of Health.*

*

"Health is the essential factor in productiveness, prosperity, and happiness, and hence in the advancement of civilization."—*Sir Frederick Treves.*

(*Continued on Page XXI*)

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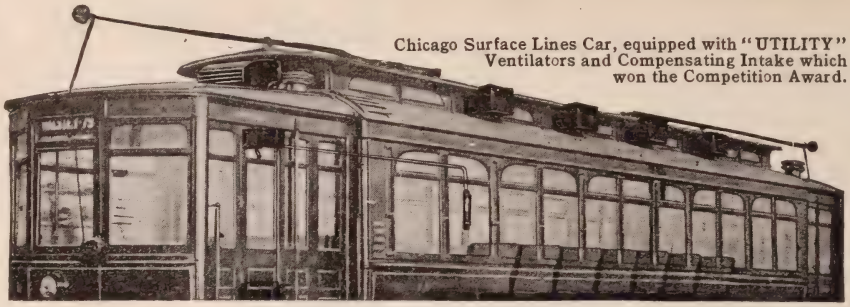
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And charge you not one shilling.
—*Iowa Tuberculosis Association.*

*

Joshing the Medico.—"And shall I be able to play the piano when my hands heal?" asked the wounded soldier.

"Certainly you will," said the doctor.

"Gee, that's great! I never could before."—*Boston Transcript.*

*

There was an old woman who lived in a shoe,
She had so many children she didn't know what to do,
Till the children all joined The Health Crusade,
And in running her household, became her best aid.
—*Illinois Arrow.*

*

Milk is the best and cheapest of foods. It should be used by human beings from infancy to old age. Without it babies sicken and die. It is splendid health economy to see that your children have plenty of milk.—*Bulletin, Chicago Dept. of Health.*

*

Clean of mouth and clean of speech,
Clean of thought and deed;
Help us our ideals to reach—
Then we'll be clean indeed.
—*Buffalo Sanitary Bulletin.*

*

If the school children of Illinois had received more attention during the past ten or twenty years, there would not be so many revenues and exemption boards in developing the new national army, nor so many young men physically unfit to serve the nation in time of emergency.—*Illinois Health News.*

*

Cheer Up, Clean Up, Keep It Up!—More germ diseases are propagated by dirt and filth. Sunlight, cleanliness and fresh air are antagonistic to germs.

Clean, neat and cheerful surroundings promote personal and community morale as well as efficiency.
—*Buffalo Sanitary Bulletin.*



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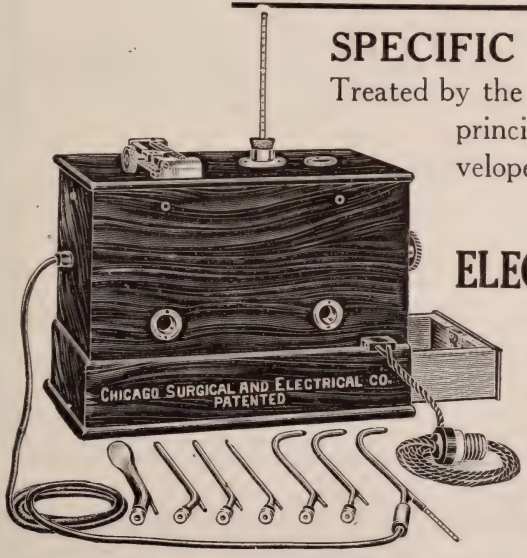
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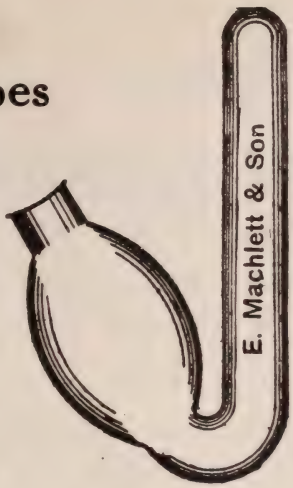
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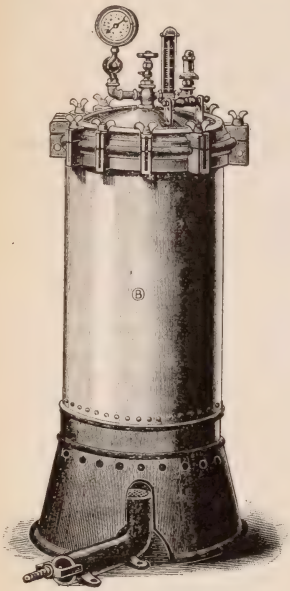
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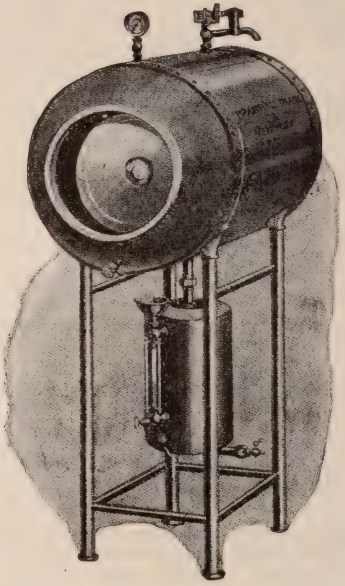
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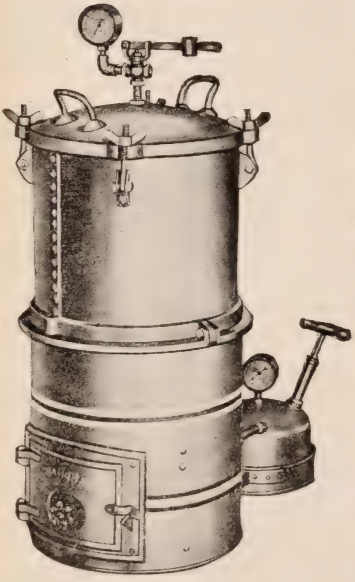
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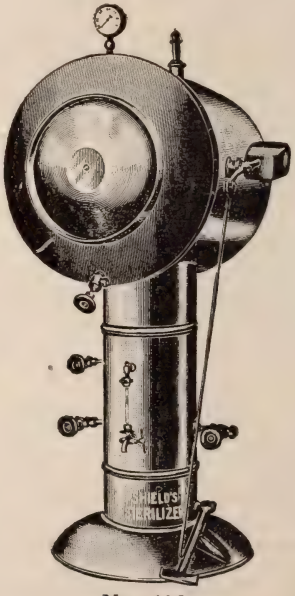
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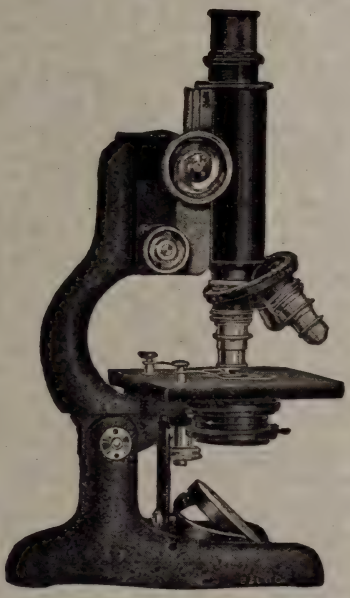


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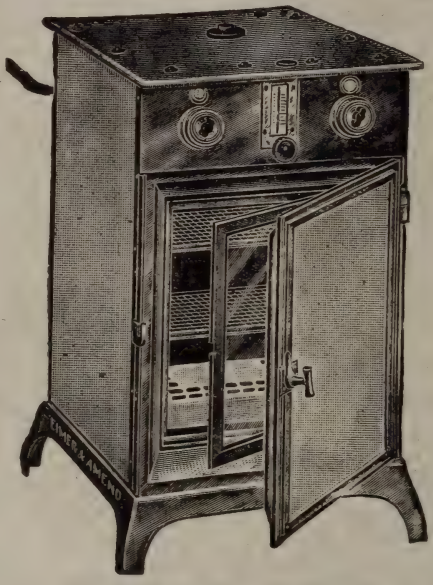
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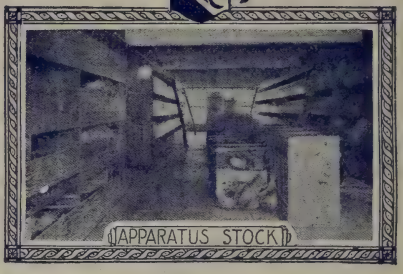
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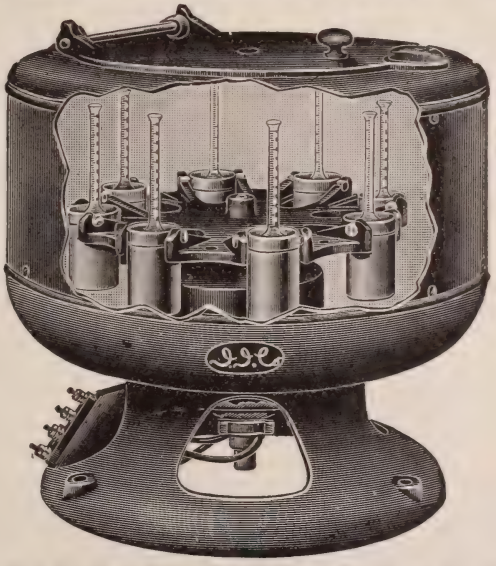
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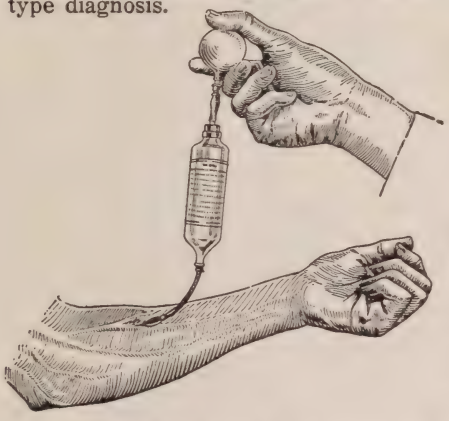
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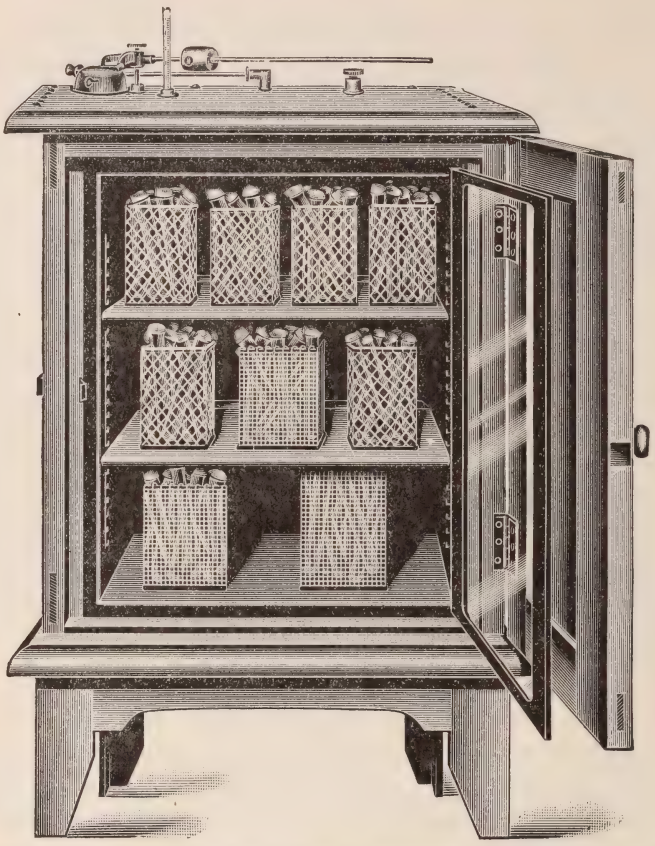
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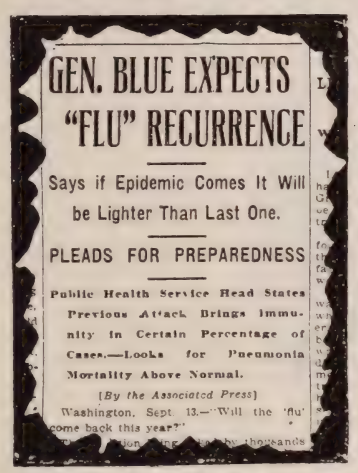
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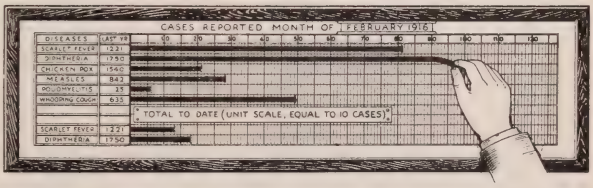
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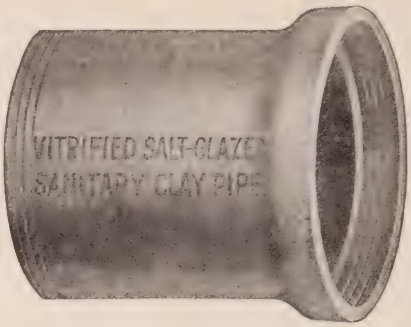


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It is precisely because of the stock-taking in human health made necessary by the war that we are in a position today to urge that human health be recognized in Peace and War as a matter of first concern to the country.—*Herald of the Well Country.*

✻

A Contingency.

The early bird will get the worm,
Of that there is no question;
But if, alas, the worm should turn
He'd get the indigestion.
—*Boston Transcript.*

✻

A Double Dose.—"Mandy, I'se a sick man," said Jake, looking very miserable, "at de hospital dey says I'se got berkulosis."

"All right Jake, we'll take keer of you and get rid of dat berkulosis."

A week later Jake stumbled in more woe begone than ever. "Taint no use, Mandy, nary bit of use. I aint never gwine ter git well. De doctors say dis morning I'se two berkulosis."—*Camouflage.*

✻

If Truth Were Told We Might See These.

"Dirty milk for the same price as clean milk."

"We sell the only unwrapped bread in the City."

"With each quart of ice cream we give away free dirt in it."

"Specially dye colored candy for ignorant children."—*Cumberland, Md., Bulletin.*

✻

Sho' 'Nuff!—"Did you heah about my Sam Brown getting promoted in de army?"

"No, tell me."

"Yeas, ma'm. He's done been made a Corpusal."
—*Judge.*

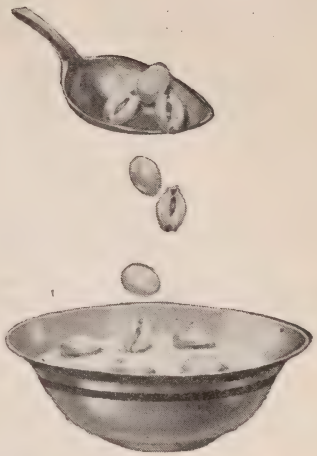
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The principles for the control of syphilis and gonorrhea differ in no wise from those used to control smallpox, leprosy, tuberculosis, measles, dipthheria, etc. The health officer must not regard venereal disease as a punishment for sin and crime—the victim or culprit needs help and sympathy. The immediate problem is the prevention of further spread of the infection.—*Bulletin, California State Board of Health.*

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Bracing.—"Did the mountain air brace you up?"

"Wonderfully! Why, after I'd been up there for three weeks I got so I could pay the hotel charges without a quiver."—*Boston Transcript.*



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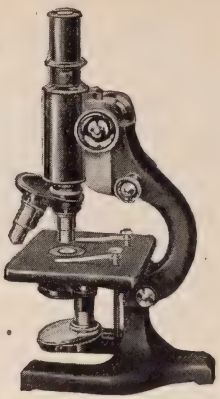
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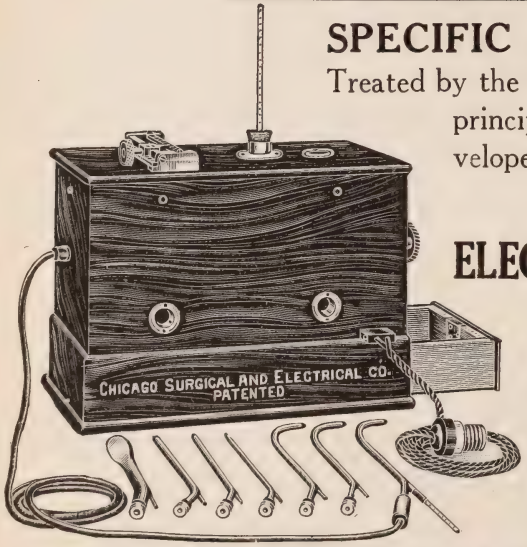
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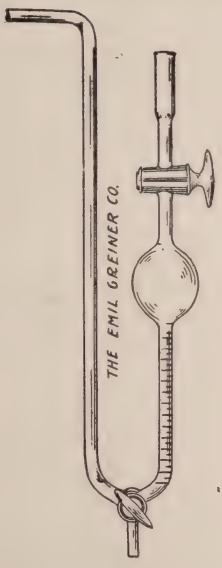
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The use of Diphtheria Antitoxin has reduced the number of deaths from this disease 75 per cent. The number of children who are annually attacked with diphtheria has, however, not materially changed in recent years. Notwithstanding the brilliant results of Diphtheria Antitoxin in curing the disease and controlling epidemics, the prevention of outbreaks is not practically within its scope.

According to the United States Public Health Service (*Public Health Reports*, May 16, 1919, page 1063): "In New York City, diphtheria still causes 1,000 deaths annually, approximately 20 per 100,000. Rates only a little less than this prevail in Rhode Island, Pennsylvania, Kentucky, North Carolina, Massachusetts and Michigan."

The Schick Test

During the past three years, Dr. W. H. Park, Director of the Bureau of Laboratories of the New York City Health Department, has been making efforts to effect a further reduction in the diphtheria mortality. As a result of extensive studies by means of the Schick Test conducted under his direction, it has been found that susceptibility to diphtheria is present in the following proportions:

Age	*Per cent Susceptible*
Under 3 months	15
3 to 6 months	30
6 months to 1 year	60
1 to 2 years	70
2 to 3 years	60
3 to 5 years	40
5 to 10 years	30
10 to 20 years	20
Over 20 years	15

The test consists in injecting the individual with 1/50 of a minimum lethal dose of diphtheria toxin for a 250-gram guinea-pig; the injection being made *intracutaneously* on the flexor surface of the forearm. A *positive* reaction represents the action of an irritant toxin upon tissue cells not protected by antitoxin. Hence, it indicates absence of immunity to diphtheria, and is manifested by an area of redness which slowly appears at the site of injection. In a *negative* reaction, the skin at the site of injection remains normal, definitely indicating an immunity to diphtheria.

The practical value of the Schick Test has been recognized by schools, hospitals and institutions, but up to the present time its use by the general practitioner has not received the attention it deserves outside of his institutional work.

Prior to the development of the Schick Test, passive immunity was accomplished by injecting every exposed individual with 1,000 units of Diphtheria Antitoxin. The first practical application of the Schick Test was to determine, among those exposed, the individuals who were susceptible; thus avoiding the use of antitoxin in those individuals possessing natural immunity.

The prophylactic use of antitoxin is necessary for those susceptible individuals who are exposed to the disease, but the duration of such immunity lasts for a very short period.

Active Immunization

The second application of the Schick Test is in connection with Diphtheria Toxin-Antitoxin Mixture for establishing permanent immunity against diphtheria. It is possible by the use of these products to actively immunize all susceptible individuals against diphtheria, so that outbreaks of the disease can be effectually prevented.

The following appears in *Public Health Reports*, May 16, 1919, page 1066: "During the past three years Park and his co-workers have employed active immunization with toxin-antitoxin mixtures in the cases of over 4,000 susceptibles (including 1,000 infants under one week old), without the subsequent occurrence of a single case of diphtheria. Park summarizes his observations as to the value of this active immunization as follows:

> "The procedure is absolutely harmless. No reaction develops in infants, while in older children and adults a moderate swelling of the arm may appear and last for from one to three days.
>
> "One injection gives immunity to 80% of those previously susceptible; two injections gives immunity to 90%; and three injections to 97%.
>
> "The immunity conferred lasts for at least three years and probably much longer.
>
> "No diphtheria has occurred in those so far immunized."

In reporting the immunity results from toxin-antitoxin injections, Park (*Proceedings Society Experimental Biology and Medicine*, April 16, 1919, page 116) states: "Tests have just been completed in several institutions in which $3\frac{1}{4}$ years have elapsed since the toxin-antitoxin injections. The immunity continues as well developed as in $2\frac{1}{4}$ years. It is hoped, therefore, that the acquired immunity may persist possibly for life as in the case of natural immunity."

The dose of the Diphtheria Toxin-Antitoxin Mixture is 1 cc injected subcutaneously. Three injections are given at intervals of one week. It has been found that the development of active immunity requires from 8 to 12 weeks.

The use of Diphtheria Toxin-Antitoxin Mixture for active immunization against diphtheria is especially applicable for the following groups of individuals:

(*a*) All children from 6 months to 5 years of age. During this age period, the susceptibility to diphtheria as well as the mortality from the disease is greatest. Children of these ages can be reached in homes, infant asylums, milk stations, day nurseries, public schools, orphan asylums and other institutions.

(*b*) Among adults those who come in contact with diphtheria and are constantly exposed to the infection. In this group are included especially physicians, nurses and hospital attendants in contagious disease hospitals.

The general use of Diphtheria Toxin-Antitoxin Mixture by the medical profession will be a powerful factor in successfully eliminating diphtheria from every community. As aptly stated by the United States Public Health Service (*Keep Well* Series, No. 4, page 10): "Why not have the doctor make a Schick Test on your child, and if this shows the lack of protection against diphtheria, have him give the three protective injections."

The Lederle Antitoxin Laboratories prepare both the Schick Test and the Diphtheria Toxin-Antitoxin Mixture. These are supplied in the following packages:

Lederle Outfit for Schick Tests (10 Tests)	$.50
Lederle Outfit for Schick Tests (100 Tests)	1.25
Diphtheria Toxin-Antitoxin Mixture (One complete immunization in 3 vials)	1.00

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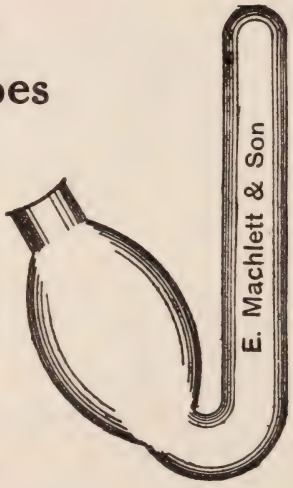
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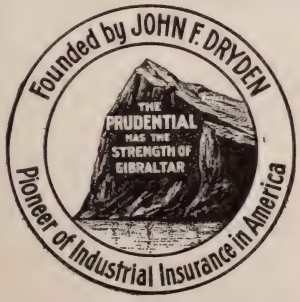
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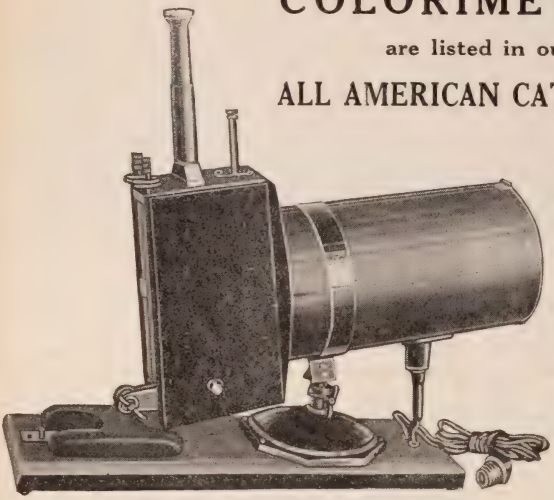
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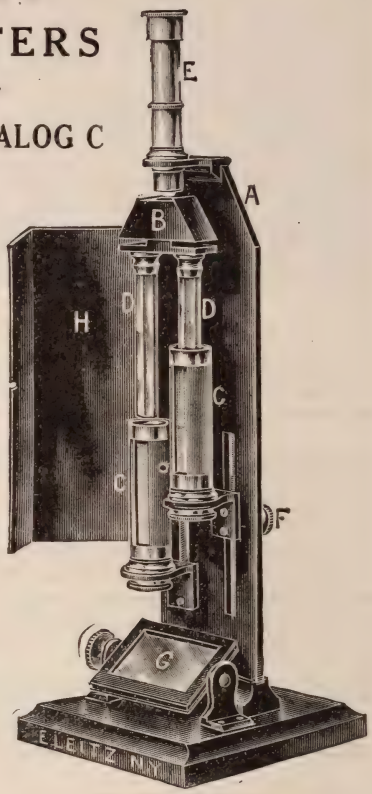
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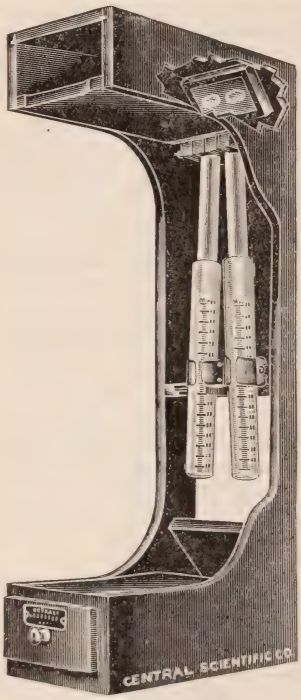
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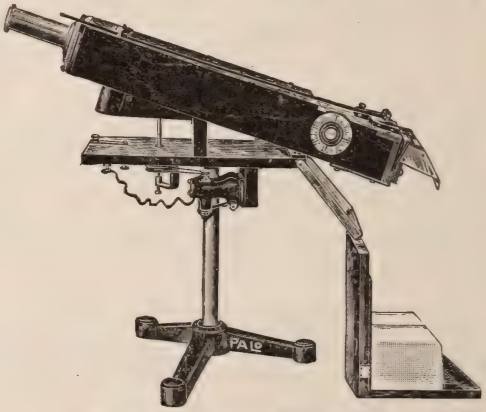
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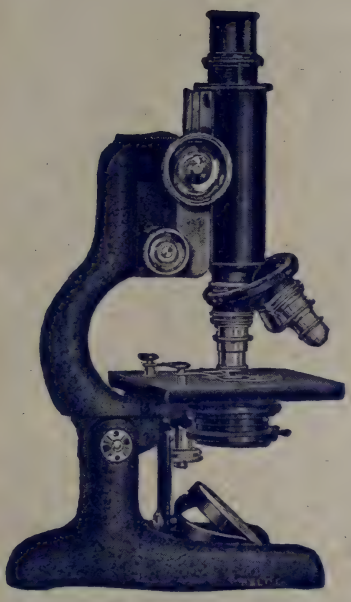


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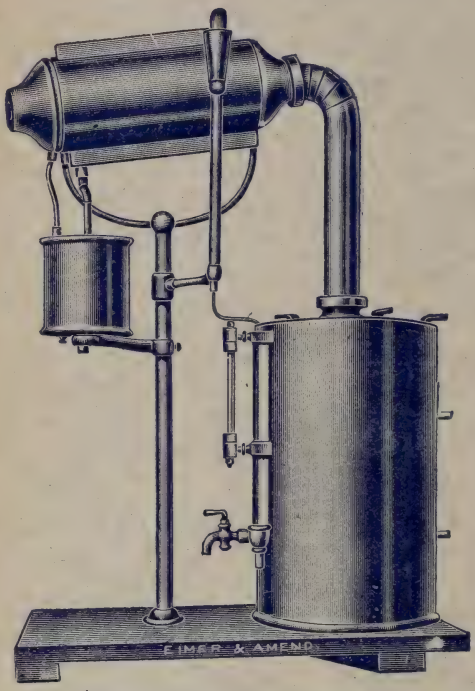
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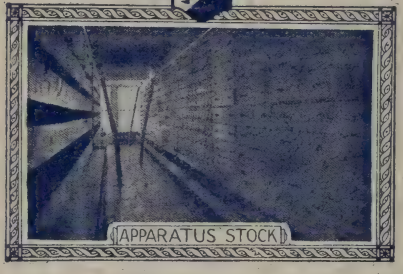
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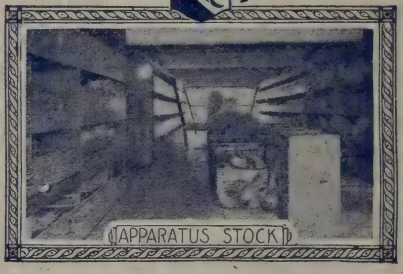
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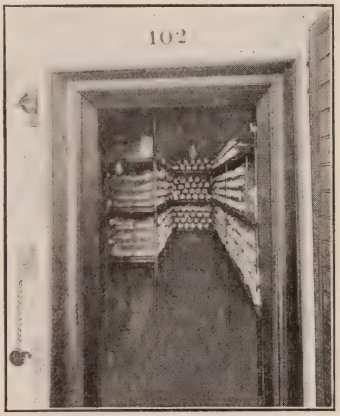
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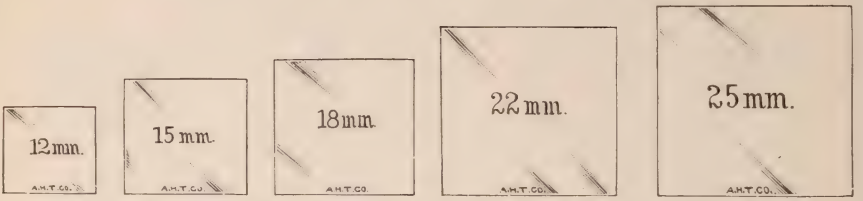
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A competent doctor named Bliss,
Had a case with tu-ber-cu-lo-sis.
He told the whole truth,
And now a bright youth
A nice shiny coffin will miss—Oh, Bliss!
—*Buffalo Sanitary Bulletin.*

*

Easy.—Fastidious Country Boarder—Great Scott! Can't you do something to keep the flies out of the dining room?

Farmer—Wal, yes, I could set the table in the kitchen.—*Boston Transcript.*

*

Little Drops of Sputum
Little sprays of spit
From a slack consumptive
Make another case of it.
—*A. N. Onymous.*

*

We must wake up and pay more attention to the physical and moral development of the youth of the country.—*Modern Medicine.*

*

Medical Ethics.—"Sorry," said the doctor after a glance at his new patient, "but you'll have to call in another physician."

"Am I as sick as all that?" gasped the patient.

"No, but you're the lawyer who cross-examined me last March when I was called to give expert testimony in a certain case. Now my conscience won't permit me to kill you, but I'm hanged if I want to cure you, so good-day."—*Boston Transcript.*

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Healthgrams.

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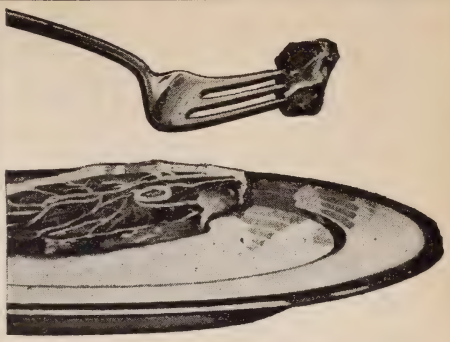
Community hygiene deals with the simple things of life.—*Buffalo Sanitary Bulletin.*

*

Moses and the Feces Problem.—"Thou shalt have a place also without the camp, whither thou shalt go forth abroad:

"And thou shalt have a paddle upon thy weapon; and it shall be, when thou wilt ease thyself abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee."—*Deut.* 23:12–13.

(*Continued on Page XXI*)



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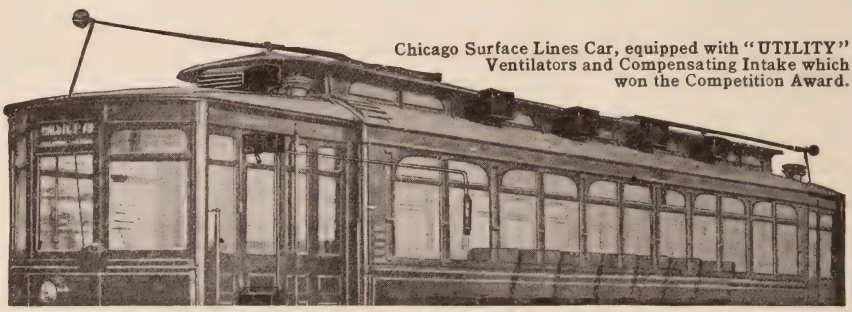
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*

Not Fit To Be Kissed.

"What ails papa, mother?" said a sweet little girl,
Her bright laugh revealing her teeth white as pearl.
"I love him and kiss him and sit on his knee,
But the kisses don't smell good when he kisses me.
Don't nobody's papas have moufs nice and clean,
With kisses like yours, mama, that's what I mean?
I want to kiss papa, I love him so well,
But kisses don't taste good which have such a smell."
Her blossom-like face wore a look of disgust,
As she gave out her verdict so earnest and just.
"Yes, yes, little darling, your wisdom has seen
That kisses for daughters and wives should be clean;
For kisses lose something of nectar and bliss
From mouths that are stained and unfit for a kiss."

—*Boston Herald.*

*

Healthgrams.

Cleanliness is a good habit.
Good habits are as "catching" as measles.
Ill habits gather by unseen degrees.
Good words without deeds are rushes and reeds.
Dirty nails spoil the prettiest hands.
Dirty teeth invite pains and dentists.
Virtue never dwelt long with vice.
Adopt the standard which you require of your sister or wife.
People are judged by their attitude towards women.—*Buffalo Sanitary Bulletin.*

*

Fair Enough!—Not knowing the second stanza of America, a druggist in the audience sang:

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—*Exchange.*

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"Don't you think, doctor, that the secret of keeping young lies in keeping one's imagination!"

"Undoubtedly, but keeping one's imagination is difficult when so little is left to it."—*Life.*

*

A Coryzatic Word.—We never run across the word "hebdomadal" without thinking of a cold in the head.—*Boston Transcript.*

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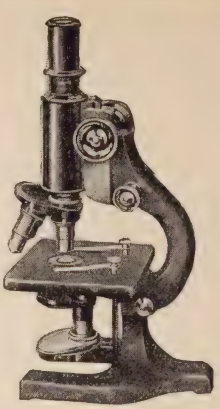
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(Advertising Talk #17)

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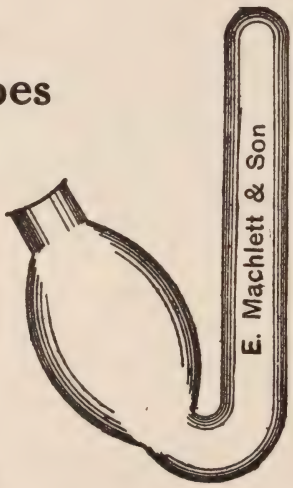
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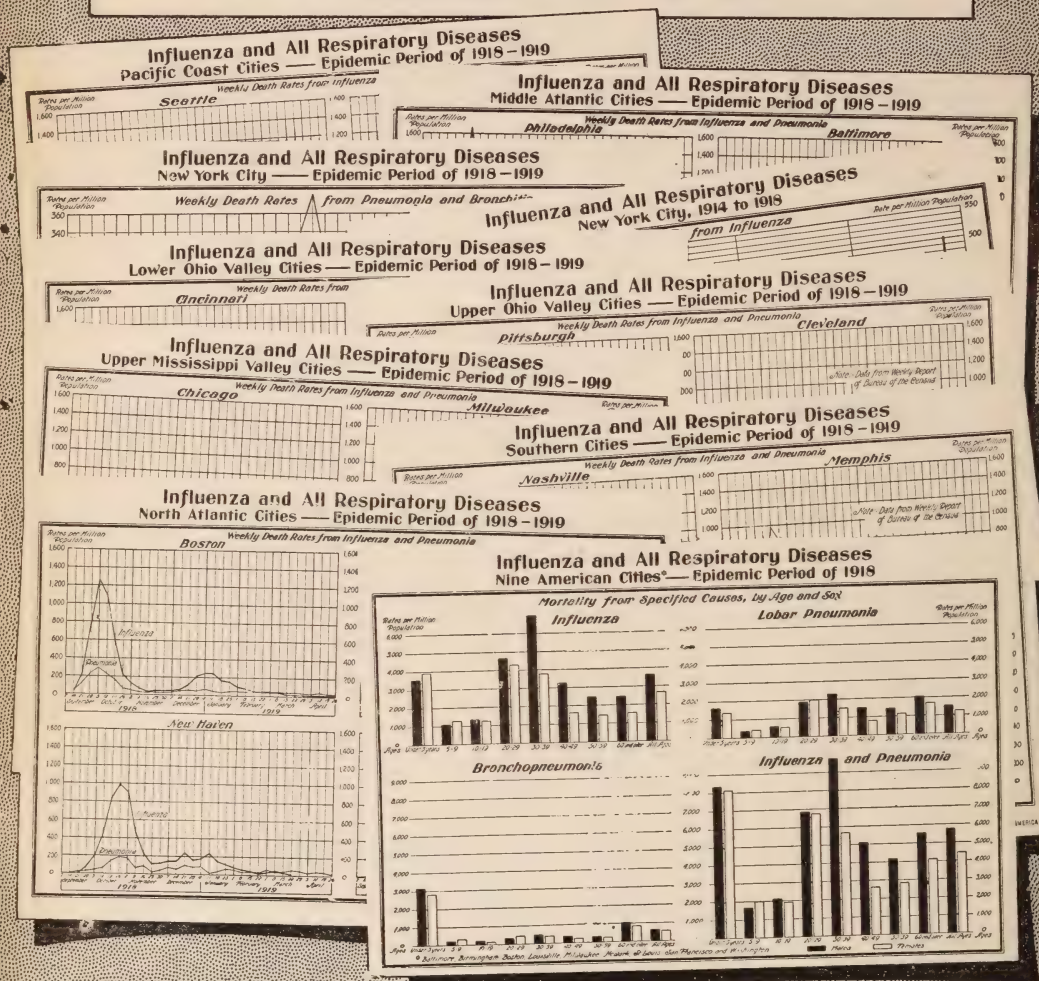
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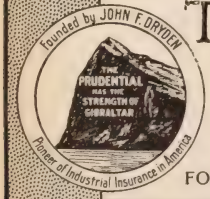
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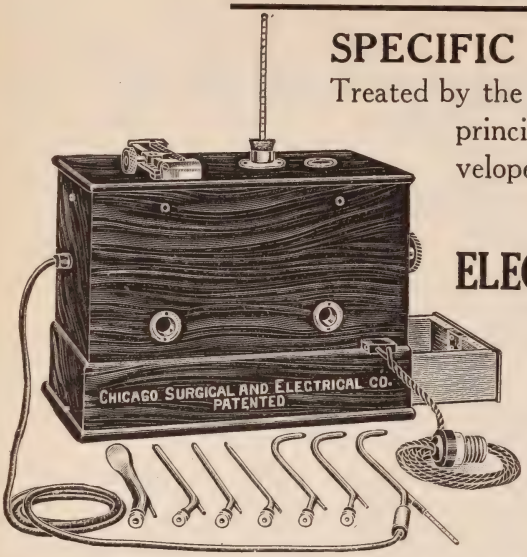
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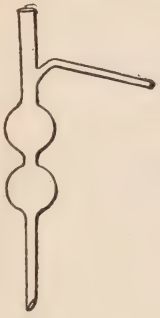
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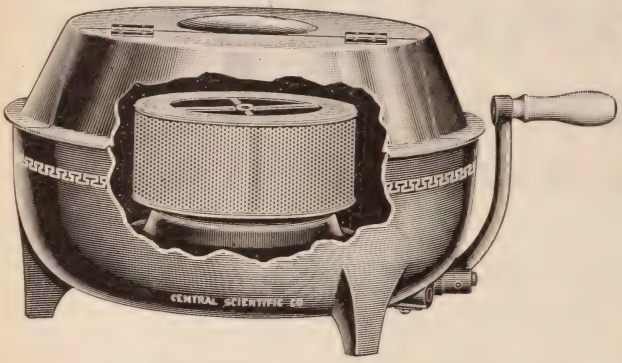
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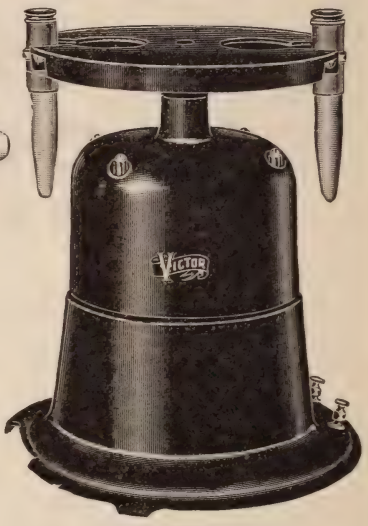
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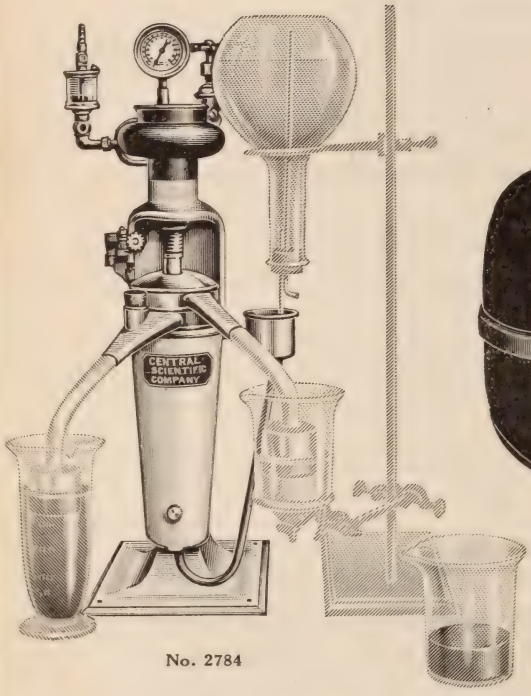
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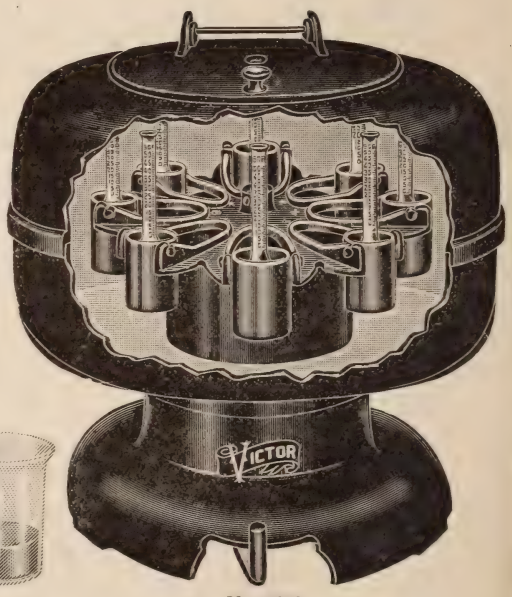
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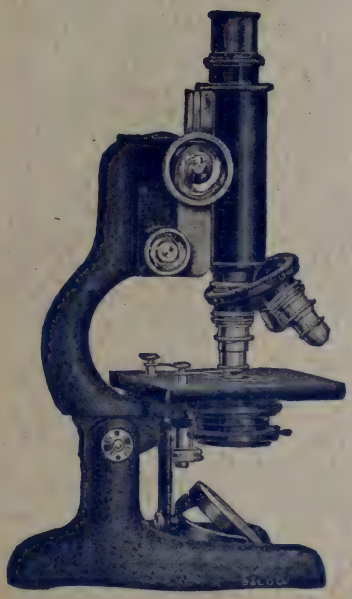
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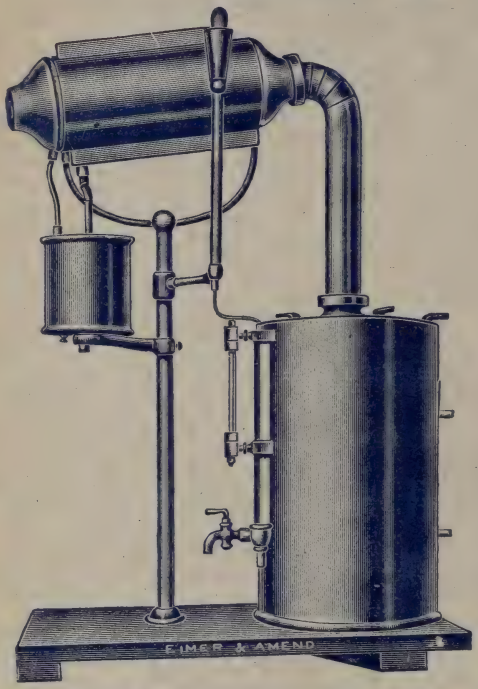
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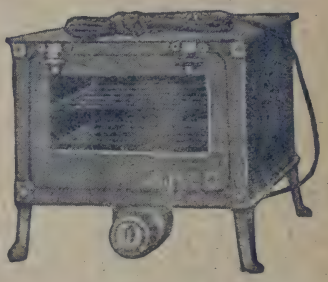
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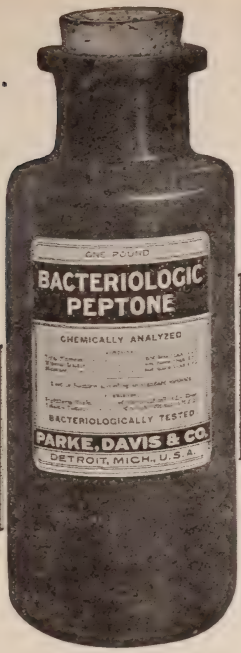
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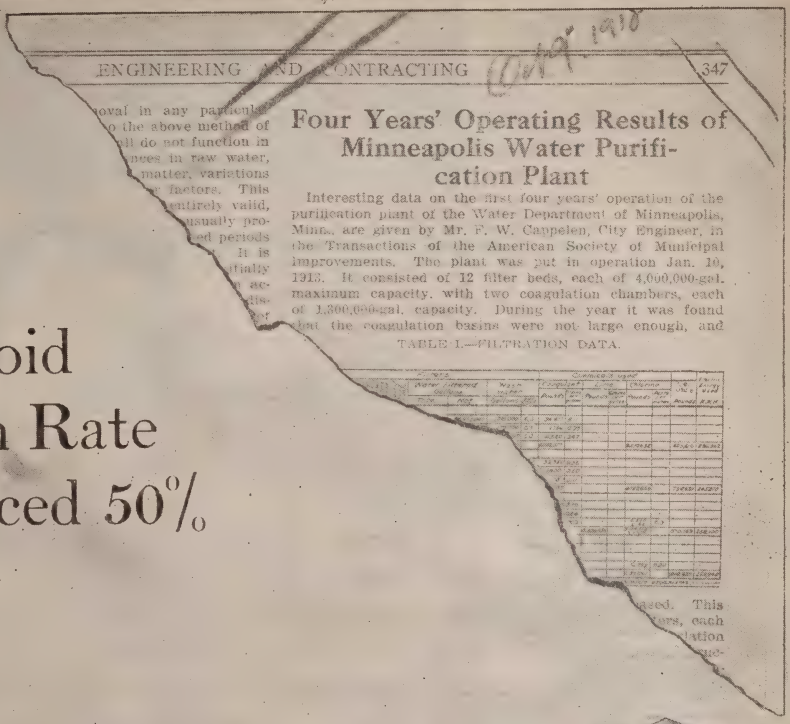
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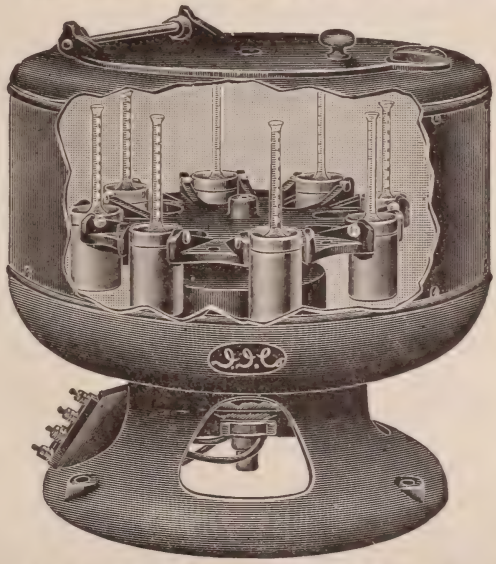
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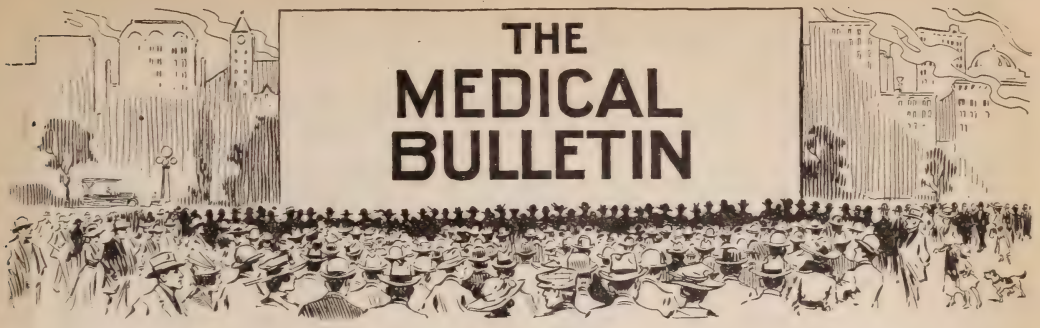
This work is an impersonal survey of the whole situation. Dr. Bishop discusses the modern conception of **opiate addiction as a disease,** which he first outlined in the Journal of the American Medical Association, Feb. 8, 1913. He shows how this real disease should be treated as are other diseases. This is in direct opposition to the popular conception that addiction is a "vice," a "habit," a "morbid appetite," and should be punished socially as well as legally. The way in which its victims are spoken of as "drug habitue," or "drug fiend," or "dope fiend," shows scientific neglect of it and apathy and indifference on the part of those who ought to be better informed.

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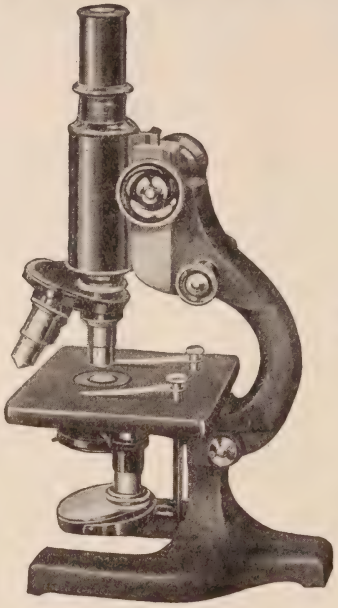
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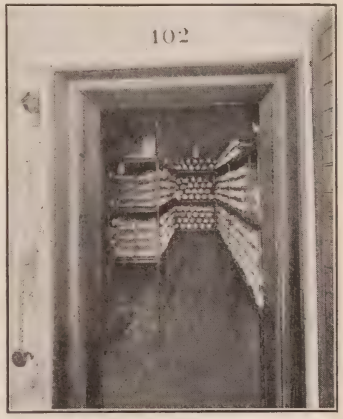
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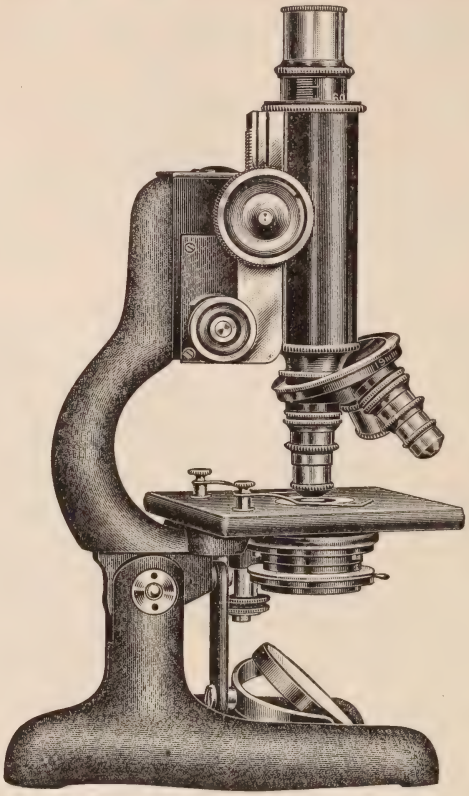
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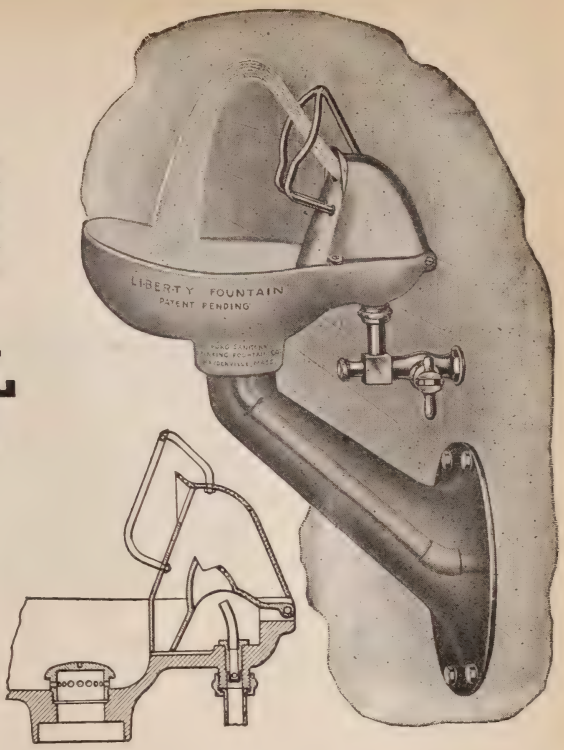
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To me, the tragedy of this earth is a diseased child. The natural inheritance of a child is joy and strength and growth and freedom. He is robbed of it all by disease. To me, the most tragic indictment of civilization is a diseased child—civilization that stands still and lets a little child, through ignorance of his parent or his teacher or for any cause, be robbed of his divine inheritance of the joy and happiness of childhood—of the strength and growth of childhood! Medical inspection is intended to help prevent that tragedy—to help remove that terrible indictment against our Christian civilization.—*J. Y. Joyner, M. D.*

*

A Common Complaint.—Physician—"Do you ever have any trouble with your stomach?"

Patient—"Yes, doctor, getting it comfortably full."—*Exchange.*

*

Alas, We Must Remain Homely.—"A rub with alcohol is a great beautifier," says a physician. Nowadays the rub comes when you try to get the alcohol.—*Boston Transcript.*

*

There is a budget that we pay with frightful regularity: it is that of unnecessary disease and premature death.—*Irving Fisher.*

*

No Wonder She Remembered.—"It's four years now since he left me," said the deserted wife. "I remember it just as well as yesterday—how he stood at the door, holding it open till six flies got into the house.—*Boston Transcript.*

*

Too Much Precaution.

There was an old lady of Crewe
Who was horribly frightened of flu;
She spoilt her complexion
Through fear of infection,
Having fixed on her gas mask with glue.
—*Michigan Public Health.*

*

No man has the right to endanger his fellow man with infection, any more than he has the right to endanger him with physical injury.—*M. J. Rosenau.*

*

The Ranking Officer.—"Wonder why that newly returned captain always salutes his wife?"

"She underwent a major operation while he was away."—*Journal A. M. A.*

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No sanitary improvement worth the name will be effective whatever acts you pass or whatever powers you confer on public officers, unless you create an intelligent interest in the public mind.

(*Continued on Page XXIII*)

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PUBLIC HEALTH CLIPPINGS—*Continued*

Let us not forget that the entire child goes to school—body, soul and mind. Any system of education which ignores one or the other of these factors will be to the disadvantage of the child.—*M. J. Rosenau.*

✻

Slippery Footing.—"Never put ice in your drinks. Cool them by standing on ice," says a health bulletin. We started to try this method but got "cold feet."—*Boston Transcript.*

✻

There should be no uncared-for tuberculosis patient in any civilized community. The untrained and uncared-for tuberculous individual, whether he lives in a palace or a tenement, will constitute a center of infection.—*Knopf.*

✻

Give Life a Chance.—Health is natural; disease is abnormal. Life is a fight against disease, and nature has provided that life shall win if given half a chance. —*Herald of Well Country.*

✻

Un-Feelin'.—Doctor Green—"Your father insulted me. Said he wouldn't have me attend a cat for him."

Miss Keen—"The idea! I don't see why papa should fear to commit a cat to your charge—a cat has nine lives."—*Boston Transcript.*

✻

Self-respect is the cornerstone of all virtue.

A straight line is shortest in morals as in geometry.

Babies and old people should not take a cold bath.

Warm baths are safe for everybody and should be taken at night before going to bed.—*Buffalo Sanitary Bulletin.*

✻

Health Rhyme.

A man should take example
From the clock, says Doctor Brown,
Which always ceases working
When it gets run down.

—*Boston Transcript.*

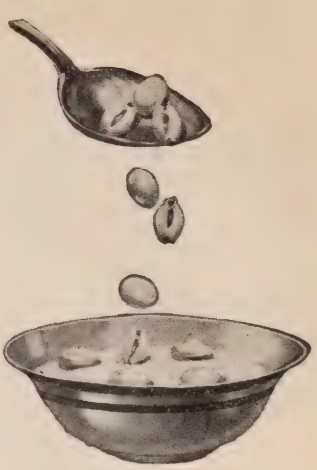
✻

Rural school children suffer as much from defective nutrition as school children in cities. The children with the warm lunch are better nourished and do their school work with better results.—*Louisiana Monthly Bulletin.*

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An Unusual Case.—"Can you see as well with one eye as with the other?"

"Better, sir."



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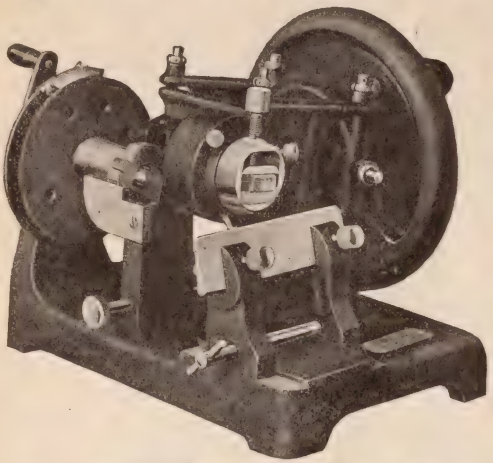
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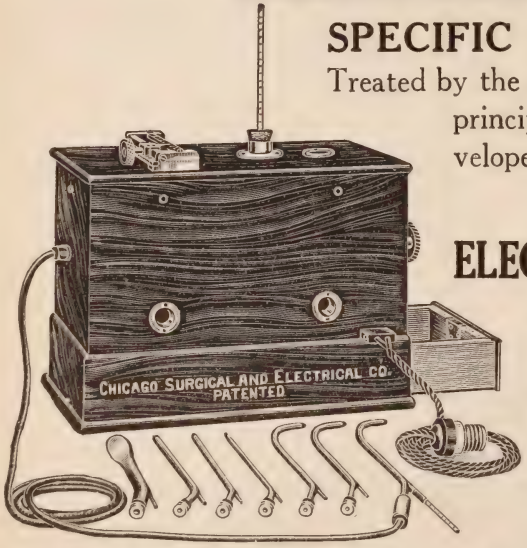
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(*Continued from Page 1002*)

Dust in the Abrasive Industry.—A high tuberculosis ratio in an industry is significant of an excessive death rate from this disease. The death rate is increased to the extent of one or two out of every 1,000 persons employed in these dusty trades each year because of the special hazards of their employment. The most hazardous dusts are the small, hard, sharp nonabsorptive particles. The emery and grinding wheels manufactured are composed of a fused aluminum compound and carborundum, each ingredient having a hardness between 9 or 10, or closely approaching the diamond. One series of tests made in a grinding room which was supposed to have a good grade of enclosed devices and exhausts showed grave defects, in that exhaust ducts were so small that their high frictional resistance not only increased the cost of operation but decreased suction pressure, tending to clog; the system had been allowed to deteriorate through lack of maintenance; the fan capacity was too small and the hood applications too limited,—the whole giving a false sense of security. Counts in rooms showed from 15,000,000 to 222,000,000 one-fourth standard unit particles per cubic foot—the highest number that has ever been recorded in industrial dust counts not excepting the Joplin, Mo., mines. The average number of particles was 31,000,000 and the average weight 1.74 mgs. per cubic foot (as against maximum standards which have been set at one-fourth million particles or 0.02 mgs. per cubic foot). Workers in the office building and those in the vicinity also had dangerous exposures to this fine, menacing dust. The normal dust content of the air at this season was only 0.0005 mgs. per cubic foot.—Winslow, Greenberg and Greenberg, *Reprint No. 530, Public Health Reports.* (*E. R. H.*)

✻

What Should Physical Examination Include?—Selby lays down the rules for physical examinations and the exact methods of carrying them out as a result of a system in practice at the National Malleable Castings Co., Toledo, Ohio. A copy of the examination used accompanies the article.—C. D. Selby, *Hospital Management*, Oct., 1919, pp. 53–56. (*E. R. H.*)

✻

Industrial Poisoning of the Aromatic Series.—This is one of the Cutter lectures delivered at Harvard Medical School. The author takes up benzene and its derivatives with a historical and case review dwelling on nitrobenzene, aniline, and especially upon the manufacture of dyes. Those having to do with coal tar by-products should read this article in full.—Alice Hamilton, *Jour. of Ind. Hyg.*, Aug., 1919, pp. 200–212. (*E. R. H.*)

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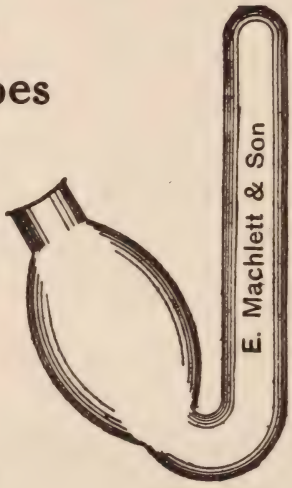
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THIS IS THE TITLE of a new booklet just issued by the Metropolitan Life Insurance Company. It contains reproductions in color of the new exhibit of the Company. Each page contains reproduction of a single chart. The following is the story told by the charts:

"Primitive man was an outdoor animal — happy, healthy, and strong. Gradually his habits of life changed. He began to live under shelter, to wear clothing, to cook his food. Gradually he lost his power to resist disease. Sickness came.

Man's ways of living changed. Instead of yielding to his changed conditions, however, he learned how to adapt his life to meet his needs. He found there were certain laws which had to be observed to protect health. These laws say man must have fresh air and sunshine, exercise and proper rest, good food and clothing, plenty of play and plenty of work."

¶ A limited supply of these booklets has been set aside for general distribution. If you desire your share, write to the

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50,000 Americans were killed *in 19 months* of the great war.

400,000 Americans succumbed to Influenza *in 6 months* of the epidemic.

Deaths from Influenza and All Forms of Pneumonia

Sept. 14, 1918 to March 1, 1919, in Forty-Six American Cities

(U.S. Census Reports)

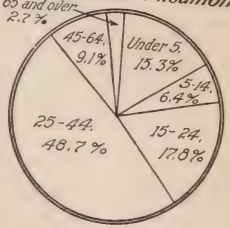
Greater New York	31,960	Kansas City, Mo.	2,227	St. Paul	1,001
Philadelphia	15,566	Denver	1,848	Syracuse *	1,027
Chicago	13,176	Providence	1,622	Richmond, Va.*	995
Boston	6,183	Milwaukee	1,586	Jersey City *	974
Pittsburgh	5,698	Seattle	1,429	Columbus, O.	938
Baltimore	4,962	Portland, Ore.	1,425	Fall River, Mass.	902
Cleveland	4,405	Minneapolis	1,293	Nashville	894
San Francisco	3,785	Rochester, N.Y.	1,274	Toledo	685
St. Louis	3,613	Oakland	1,234	Atlanta *	654
New Orleans	3,313	Worcester, Mass*	1,227	Memphis *	607
Los Angeles	3,193	Louisville	1,206	Albany, N.Y.	748
Washington, D.C.	3,116	Birmingham *	1,180	Dayton, O.	748
Buffalo	3,075	Indianapolis *	1,149	Cambridge, Mass.	698
Newark, N.J.	2,663	New Haven	1,141	Lowell, Mass.	695
Cincinnati	2,263	Omaha *	1,133	Spokane	557
				Grand Rapids	344

* Complete Data Not Received.

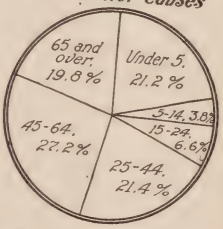
Deaths According to Age

New York City, Sept. 8 to Nov. 30, 1918

Influenza and Pneumonia



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To scientific and medical men—A set of charts illustrating various aspects of influenza mortality available on request.

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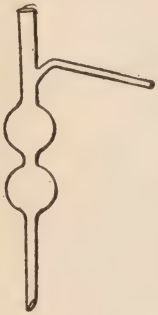
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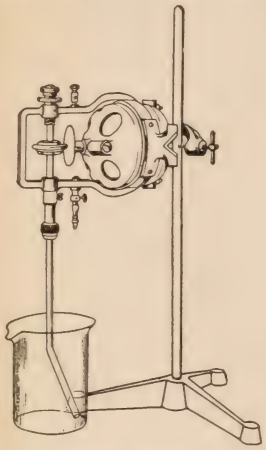
Attracted Widespread Interest at the National Chemical Exposition

BECAUSE OF MANY NEW AND UNUSUAL FEATURES

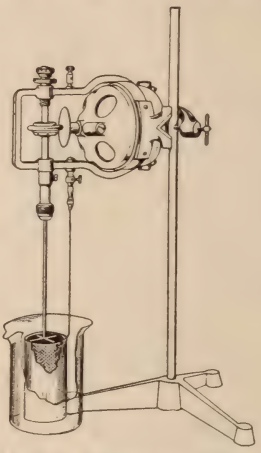
These Features and Some Suggested Uses are Shown Below

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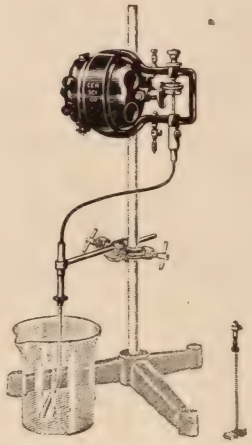
IS A FEATURE WHICH RECEIVED ESPECIALLY FAVORABLE COMMENT



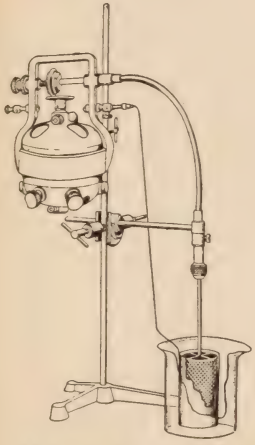
Direct Stirring



Used as Rotator for Anodes in Electrolytic Analysis

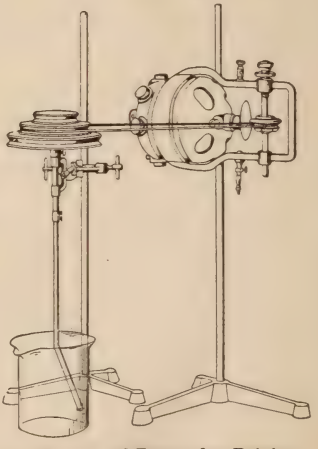


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As Anode Rotator with Flexible Shaft

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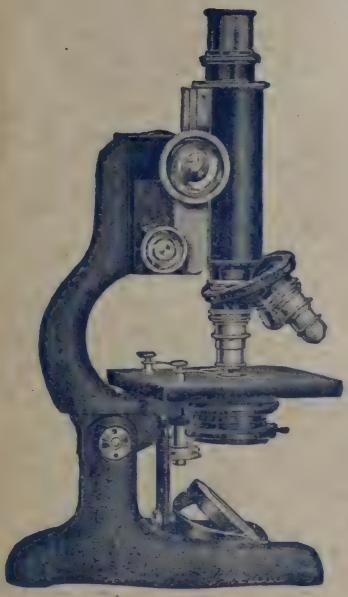


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